THE FARMERS' CABINET,

AND

AMERICAN HERD-BOOK.

DEVOTED TO

AGRICULTURE, HORTICULTURE, AND RURAL AND DOMESTIC AFFAIRS.

Perfect Agriculture is the true foundation of all trade and industry.—LIEBIG.

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Agricultural Discussion—Manures—The Potatoe Rot.

January 27th.

JUDGE CHEEVER, of Saratoga, presided, in the absence of the President.

Col. Johnson stated that the question for discussion was, in continuation from the meeting of last week, upon the subject of Manures.

This was a subject in which all practical farmers were greatly interested, and it was hoped and expected that such as were present would give to the meeting their personal experience and the results of any experiments which they might have made. Mr. J. believed that much good would be the result of these discussions, for aside from the facts and information which were elicited in these meetings, they had a tendency to awaken interest and inquiry among the farmers in all parts of the State. Since the last meeting, he had received a letter from a gentleman residing in one of the river counties, who had read the discussions in the newspapers, expressing his deep interest in them, and suggesting a subject for the next discussion. Mr. J. read the letter, more for the purpose of showing that there was a spirit of inquiry awakened among the farmers abroad,—a fact which was still better evinced in the extensive correspondence of the Society. He remarked also, that he should propose that at the conclusion of the discussion of any particular subject, those present should be called upon to give their opinion with regard to it—for unless a result of this kind was reached, the object would be in a great measure lost, we should not know what conclusion we had reached in our own minds upon hearing the differing statements presented. This was the plan, he said, in all the English Societies, and a very good one.

Mr. Coe, who had suggested the question before the meeting as a subject for discussion, had merely thrown it out, he said, for the purpose of getting the opinions of others who had experience, and to solicit inquiry, and not because he understood the subject himself. It had occurred to him that there might be something lost in the decomposition of manure, whether thrown together in heaps, placed under cover, or otherwise. That the warmth which arises during decomposition and escapes in the form of steam, might be imparted to the soil, if the manure was buried in it while in a fresh or undecomposed state. He was not now familiar with what had been written on this subject, but it occurred to him that Sir Humphrey

Davy, in experimenting with manure, had been able to produce a marked effect from the steam which arises from it. He (Mr. C.) however, only desired to elicit inquiry on the subject.

Mr. Howard supposed that in deciding upon this question, the different circumstances of each individual farmer must be considered. Some are so situated, that from the very fertility of their soil, little manure is needed. Others need to husband all they can obtain, and may still fall short of their necessity. To the latter class of farmers, this subject was one of considerable importance. He suggested that considerable might be added to the value of manure by composting. There were many waste materials about the farm, such as litter, muck, &c., which may be very valuable if applied to the compost heap, and passed through a process of fermentation. The heaps should be so placed that the liquids of the barn-yard might fall upon them. Some farmers adopt the plan of conveying this liquid to vats, and then applying it to the compost heap.

The degree of fermentation necessary will in a measure depend upon the quality of the soil and the kind of crops for which the compost is intended. To the small grains, raw manure is considered unfavourable, as tending to produce too short a growth of straw, and predisposing it to rust. In all its first stages of decomposition, manure was liable to throw off gasses, and it should, therefore, be combined with matter which would prevent their escape. That anything is *added* by fermentation, he did not suppose, but by bringing certain substances under the operation of this process, the amount of the aggregate value of manure is increased. Sir Humphrey Davy, to whose experiments allusion had been made, had considered that something valuable was lost in the steam escaping from the manure heap. He placed a quantity of stable manure in the soil, if he (Mr. H.) recollected right, and when it had reached a high degree of fermentation, placed pipes over it and carried the steam to some distance, upon a grass plot. In a short time the peculiar greenness of the grass was remarked by every one; and it was only accounted for from the gasses of the manure conveyed to it through these pipes. It has been observed often before, that he who allows the smell arising from his manure heap to offend his olfactories, is permitting the escape of an agent, which if applied to his crops, would be of great advantage to them. In sandy soils the benefit of composting was particularly observable. In Massachusetts there existed, along Connecticut river especially, a large extent of sandy plains, upon which various experiments had been tried for the purpose of bringing them to a state fit for cultivation. The farmers in that vicinity had told him that they had used long manure with very little advantage; but a marked effect had been produced by the application of composted manures. It seemed, in connection with the clover and the grasses, to bind the soil together, and make it more firm, so that it better resisted the effects of drought. There were other questions connected with this subject; as to the best kind of manure, and the best method of application, which he would leave to others to speak upon.

Mr. Bement had often told his story before, but had no objections to relate again his experience in this matter. He considered the use of manure as all-important to the farmer; and had taken every means to increase his manure heap, and tried many experiments in its application. One year, upon the advice of the late Judge Buel, he had put twenty loads of unfermented manure on a field proposed for ruta bagas. He sowed afterwards at the usual time, but the crop came up tardily, and was destroyed, when it did appear, by the flies. The next year he used composted manure on the same field, and had a good crop. In almost every instance, he found the composted manure of greater advantage than that applied fresh from the barn-yard; and that it was better to harrow it in or plough it in shallow, than to turn it under the first furrow. His neighbour, a practical farmer, had laughed at him for using manure from his compost heap as a top-dressing on meadow land; but the result of that experiment convinced his neighbour that he had better try it himself. Mr. B. collected manure from all his stables, the weeds from about his fences, stalks from his garden, ashes, and all the refuse of his farm, and mixed together in his compost heap. He had derived great benefit from the use of anthracite ashes, both as a top-dressing, and for his crops. He had doubled his crop of hay by the application of these ashes alone, and brought out clover where it had never appeared before. In a stiff clay soil, he considered them invaluable. The cinders collected by the locomotives in passing from Albany to Schenectady he had procured, to the amount of 800 or 1000 bushels, and placed them in his compost heap, with great success. He had applied the cinders to his onions separately, and had an unusual crop. He had also used crushed bones, and on his corn crop particularly, with great success. On turning up the roots, he found them fairly fringed with the bone dust. The great difficulty in this species of manure was the small

supply, and the difficulty in getting them properly ground.

Judge Cheever said he had not made experiments with an accuracy that would enable him to give tests, nor form results which could be relied upon. He had tried experiments, however, more or less, all his life, and taken some observations of results. From his own experience he had arrived at the conclusion, that manure was of the first consequence to the farmer in the cultivation of his crops. The success of cultivation depends mainly on the process of ploughing and manuring. Bad ploughing would defeat a crop; and the soil which requires it, will not produce good crops without manure. To decide what kind of manure his soil requires, the farmer should have it analyzed. He might find out this by experience, but at a vastly greater expense than the small sum he would have to pay a good chemist for the information. All good soils contain more or less of organic matter, such as decayed vegetables, or fibrous matter of some sort. When these are absent it is vain to cultivate. Lime is also present, either as a carbonate, sulphate or phosphate. Magnesia is also an important material of soils, though its proportion is necessarily small, compared with the amount of lime. Potash is another material ingredient; and also ammonia, or nitric acid. By obtaining an analysis, he will discover in which of these necessary component parts his soil is deficient, and thus by being able to supply them, advance his crops. If he wishes to secure a greater supply of vegetable matter, he can readily find it in his compost heap. If he wishes lime, the cheapest way is to procure the article itself. If ammonia, by a mixture of various materials, he can evolve the gasses which produce the salts.

Manure fresh from the stable he considered the best for all practical purposes within reach of the farmer. This may be improved in quality and increased in quantity by the manner of treatment. It is important to save the liquid manure—the urine of your stock—and in an available shape, if possible. There are different modes of preserving it adopted, both in Europe and in this country. Some consider that having a cistern under the stable floor is a good way; but there were objections to that. In the first place, it was expensive, and again evaporation carried off many of its valuable qualities. Observation would teach the farmer that there was a constant departure of a valuable agent from this deposite—and that agent reduced to subjection, or brought availably into possession, was of great importance. He (Judge C.) adopted the plan of an embankment around his barn-yard, which formed a sort of basin, into which he put once or twice a year,—when he did his duty—all the muck or refuse vegetable matter and peat, within his reach—everything which would be a good absorbent of the liquid manure. Where he stabled his cattle, he had a flooring of muck, covered with straw, and in clearing the stables, all that had become saturated with urine was removed to his compost heap, and the whole sprinkled over with the sulphuret of lime—plaster—or with lime itself. The object of this was to fix the ammonia, which would otherwise escape. He found by his own experience, that one yard of manure thus treated, was worth two or more of that scraped up in the barn-yard, which has been leached by the rains of a whole season. The water dissolves valuable salts, and they are thus carried away, and unless they are carried to muck, or other material placed on the ground to catch them, are lost.

If he were called upon to answer the question whether fermented manure, or that in a raw state was the most beneficial, he should decidedly vote in favour of that in a crude state. If any one doubts that it loses anything by lying, let him take it fresh into the field, and after allowing it to lie a few days remove it, and witness its effect upon the soil or crops. Just so much as passes into the soil, is lost while lying in the barn-yard. He believed it was always better to have the compost heap under cover. Then, with a proper mixture of lime or alkalies, to fix the gasses, the value of the manure is greatly increased. By taking solid matter to mix with liquids, and fixing the gasses by the application of lime, either calcined or quick, or plaster, a much greater per centage of valuable matter is obtained than in any other way. If permitted to take the weather, it constantly loses; and the sooner you can bring it in connection with your crops the better. It will then not only tend to develope the growth of straw, but go to perfect the growth of the small grains. It is found that in the kernel of grain, there is much more phosphate than in the straw. In a kernel of wheat, for instance, there is 45 per cent., while in the straw there is but 5 or 6 per cent. This valuable agent is what is lost by allowing the manure to lay exposed to the weather. If, therefore, the farmer desires to promote the growth of straw particularly, he would advise the use of rotted manure.

Manure contains all the essential ingredients to make a good soil—phosphates, carbons, magnesia and ammonia—and all soils have sufficient of sillica. If not robbed of

its best qualities by exposure, it contains essential qualities to produce good crops. In applying it, it should not be buried deep in the ground, but placed as near to the surface as it can be without exposure to the action of the sun; so that the rain in passing through it, may carry the gasses downward, but not so far as to be beyond the reach of the crops.

Dr. Ward, of Albany, desired to call the attention of farmers to the use of peat as a manure. He had no doubt that it was an absorbent of the most valuable kind, having used it for three years with very satisfactory results. This, which had been hitherto regarded as of little consequence, he found to contain valuable salts, which had been absorbed in their passage through the soil, carried down by the rains, and there become locked up by reason of the superabounding acids. Mixing it in the compost heap with the excrements of animals, it is brought in contact with other and antagonist salts, whereby they become dissolved, and add a valuable material to the compost. He had used muck with lime upon an exhausted soil, with marked effect. One field, where three years since nothing grew but mullens, he had been able to reclaim by the use of this manure, although the farmer of whom he purchased it advised him not to attempt its cultivation—oats, he thought, would certainly not be able to stand, if sowed there. He had also used the charred cinders dropped by the locomotives, alluded to by Mr. Bement, and found them a valuable agent. Around his fruit trees he first placed a layer of lime, and then covered the soil for some distance with the cinders. Upon young fruit trees especially, the effect had been very good.

Mr. Pettibone, of Oneida county, was called upon for his views on this question, and stated that he had been in the habit of using manure very lavishly, because he always had a great plenty, keeping and stabling a large stock of cattle and hogs. So far as the views of the Chairman (Judge Cheever) are in favour of applying manure in an unfermented state, he concurred with him. He believed that he had derived more benefit from it, upon a soil of clay and loam, by applying it in a green state, and putting it out of the reach of the sun and air, than by any other mode, particularly with regard to hoed crops. But allowing it to lie for a a year or so in the yard, it became light, like chaff; and although he had never attempted an experiment with it in this state, he had supposed it to be worth very little. He had used it as a top-dressing for his meadows, putting it on six or eight inches thick, and found it very beneficial. At first it would turn the grass yellow, and mat it down, but it soon after recovered its shade, and sprang up with new life. All his manure came from the stable, and his stock were fed principally upon grain, making a very rich material, which would not be likely to ferment immediately. On wheat, he found it apt to produce a too great growth of straw. One year his crop was of an excellent quality, and it was not affected by the rust. He found it better to apply the manure first to his corn-field, then sow with barley and afterwards with wheat.

It might be interesting to some, and he related an experiment with a crop of potatoes. He applied to a quarter of an acre, a wagon load of manure, composed of two-thirds of ashes, five or six bushels of lime and plaster, and about a half bushel of salt. At first he put a handful in the hill, after dropping the potatoes; but upon reflection fearing the effect of the lime, removed it, and put a shovelful upon the outside and top of the hill. The result was that he had an excellent crop, entirely free from rot. Upon the same plat, in front of his house, he had grown potatoes for five or six years. He planted the round pink-eyes, about the first of May, which is considered early. On a piece of new land he planted another lot of potatoes, and found them nearly all rotten. His neighbour, who planted near his first potatoe patch, found his fruit rotten. In his section, the potatoe is quite generally affected with the rot.

Col. Johnson observed that statements in regard to the potatoe disease were very contradictory. The State Agricultural Society had collected much testimony on the subject, considerable portions of which was favourable to early planting; but other statements were the reverse. One of the competitors for the premium on farms, at the late meeting of the Society, had stated that all his early planted potatoes rotted, while all his late ones were saved.

Dr. Ward's experience was directly the reverse of that.

Mr. Butler, of Westchester, had planted at three different periods. The earliest were free from rot, the next earliest were affected, and the latest were nearly all rotten.

Mr. Bement gave his experience in the use of three different kinds of seed, giving the preference to the Carter variety, as producing the most sound fruit.

Col. Johnson said the Carter potatoe, not only in this State, but throughout New England, was found to be rotten last year.

The Chair also related the result of his own planting, which had convinced him that

the disease first attacked the stalk, and afterwards reached to the tuber. Early planting he recommended as likely to bring the potatoe to perfection before the disease made its appearance.

Col. Johnson said in reply to this, that an analysis of the rot showed that the disease did not originate in the stalk, but first attacked the tuber of the plant. Indeed, all experience was at fault, and no two accounts scarcely agreed as to the origin or cause of the disease. The subject was an endless one, if commenced, and he suggested that it should not go further at present.

Mr. Comstock, of Oneida, offered the following resolution, as the sense of those present, in view of the discussion which had been listened to:

Resolved, That in the judgment of this meeting, it is generally most expedient to apply manures in an unfermented state over clayey or stiff soils, and particularly for hoed crops, and that it should be well incorporated with the soil; on lighter soils, whether of a sandy or gravelly character, it is far more profitable to make the application in a fermented compost, for nearly if not quite every kind of crop.

The resolution was agreed to without dissent.—*Albany Evening Journal.*

For the Farmers' Cabinet.

Agricultural Implements.

Mr. Editor,—On a recent visit to the Agricultural Implement Depository of Prouty & Barrett, in Market street, No. 194½, where, as the late Mr. Charles Roberts of Arch st., once said, "If I have half an hour to spare, I spend it amidst an almost endless variety of machinery, from an apple-parer to a thrashing machine," I observed a platform dog-power of very neat construction, to which might be attached a revolving, as well as vertical, or dash butter-churn, with the greatest facility. But, as the machine is calculated for one dog only, I would suggest, as there generally are several of these animals kept on the farm, that the platform be widened, so as to admit two, or even three, to operate at the same time; thus increasing the power, at no increase of expense.

But I have long thought, that the churning of cream is the legitimate province of the bull—the only idle individual on the farm—whose great weight would thus be brought finely into play, with much benefit to his bodily health, and conducive to his greater usefulness. Nor do I consider it at all above his means, to turn to, and cut chaff for the horses, as well as cows, at leisure hours; which, with a 12 Knife Hovey's Straw, Hay and Stalk Cutter, he could easily perform, at the rate of more than a bushel per minute.

By the way, Mr. Editor, what has become of the Fodder Cutter patented by Richardson, and exhibited at the late Philadelphia Agricultural Society's meeting, which received a premium at the hands of the Committee on Implements, and was considered by many as likely to supercede the use of all others? It was an easy-working implement in the hands of those whose interest it was to attend to it, and performed well; but I could but observe, that although it was kept perpetually going, there appeared a very small heap of cut chaff at the end of a whole day's work; which, to say the least, would have been augmented to twelve times the quantity, by a Hovey's 12 Knife Implement; making twelve cuts at a revolution, against the single and solitary cut per revolution, of the Richardson; which I could but consider a sort of retrogade movement, in the science of utilitarianism. Is it true, that, like the Barnaby & Moore Plough, this premium Chaff-cutter has disappointed the expectations of its friends, after being honoured with the award of a Society, to which we look with confidence and satisfaction, while forming our judgment on subjects so important to the agricultural community? I fear so, I must confess; but would be glad to receive information through the pages of the Cabinet. D. C.

Philadelphia.

Mode of Raising Corn.

Mr. Lawton of Great Barrington, opened the discussion, and remarked that, no doubt every one present who knew anything about raising corn, had a system of his own, and believed that his system was a little ahead of his neighbour's. He thought this feeling prevailed to too great an extent, and did much towards closing the door of information against improvement. Such was the case with himself, and though he believed that his manner of cultivation produced as large crops as any other, still he would not ask any person to receive or entertain any thing more of what he might say, than they found to be in keeping with plain common sense and truth. Mr. Lawton then introduced the results of six experiments made by Mr. Geddes, of Cayuga county, New York, for the purpose of determining the distance at which corn should be planted, and the manner of application, and best kind of manure.

The first, in the year 1837, was as follows: The ground was ploughed six inches

deep about the first of May, and planted on the third or fourth; hills three feet apart; six kernels in the hill; fifty loads of half-rotted manure were spread on after ploughing, and harrowed in as well as it could be; besides this, a hoe-full of the best compost manure was put into the hill. It was hoed twice, the cultivator being used—and the product was 70½ bushels, which, at 50 cents per bushel, amounts to $35 25. The cost of cultivation was $20 88, leaving a balance of $14 37 for the use of the land.

In the second experiment the hills were three feet by two apart, six kernels in the hill, without manure; cost of cultivation, $9 12; product, $30 12 to the acre, leaving a balance of $21.

In the third experiment, hills were made same distance as before, six kernels in the hill; was manured by filling each furrow as it was ploughed, full of barn-yard manure, unfermented, at the rate of 150 loads to the acre; expense of producing, $29 37; product, 70 bushels, amounting to $35; balance for use of land, $5 63.

The fourth experiment was the same in regard to distance and the number of kernels; manured with coarse manure, in the same way, and also with a top-dressing of manure half-rotted, at the rate of 25 loads to the acre; product 80 bushels—cost $36 37—leaving $3 63.

In the fifth experiment the corn was planted in drills three feet apart, the corn was dropped four inches apart—25 loads of half-rotted manure was applied after ploughing, as a top-dressing, to the acre,—cost, $18 75; product, 55 bushels—$27 50; leaving $8 75 for use of land.

In the sixth experiment the corn was planted in hills three feet by two, six kernels in the hill, and 25 loads of manure applied to the acre. The cost was $15 56—product 65½ bushels—$32 75—leaving for use of land $17 10. In each of these experiments plaster was used, which was not taken into the account.

In reply to a suggestion from Mr. Goodale, Mr. Lawton proceeded to give an account of his *own* manner of cultivating corn. He ploughs his ground after getting on his manure, of which he intends to apply 20 loads to the acre; and harrows the ground well before furrowing. He then takes a sharp plough and furrows down to the sheet sward, and then with a dray two feet eight inches, or three feet, marks the other way. He puts from four to six kernels in the hill, and a little plaster or ashes when the corn is dropped—and plaster after the corn is up. In cultivating he uses the cultivator and makes no hill.

Mr. Buckminster inquired as to what was considered a fair day's work for a man at harvesting. In reply, a gentleman—whose name we could not learn—considered 30 bushels of corn a good day's work.

Mr. Hubbard, of Sunderland, stated that a man in his employ preferred to work at 75 cents a day at harvesting, than at three and a half cents per bushel—thus showing that 20 bushels for him, was rather more than a day's work. Mr. H. repeated the inquiries he made at the last meeting in relation to the best mode of cultivating corn; the best mode of applying manures; and whether it is best to make hills or leave the surface smooth.

Mr. Clary of Conway, thought corn should be planted as early as the ground could be prepared. In his vicinity it is the practice to hill but very little. He thought there was no more danger of the corn blowing down than when hilled, and the growth of the corn would be improved. In the application of manure he considered it important to cover up the manure and not leave it to evaporate. He also thought it important to understand the nature of the soil, and the kind of manure applicable to particular kinds of soil. Proper attention should also be paid to keeping clear of weeds, in order that the nutriment may go into the corn and not into weeds. He always intended to have his fields left nearly as level as they were when he commenced on them.

Mr. Clarke of Franklin, preferred in the application of manure to spread it. He hoes his corn three times, thinking that he receives the benefit of the third hoeing in the next year. He makes small hills, believing that the corn grows better. In cultivating, the cultivator is preferred to the plough. He was in favour of planting as early as the 7th, 8th, or 9th of May, as the corn grew more stocky than when planted later. He thought that farmers might raise the Southern corn from fodder as profitably considering the labour expended, as any other crop.

Mr. Wright of Easthampton, thought the oftener corn was hoed the better; and that in hoeing four or five times, the farmer would receive sufficient to recompense him for his additionable labor; he did not think it beneficial to put manure in the hill—it would produce as many suckers as genuine stalks. The suckers should be removed when they appeared, immediately.

Mr. Parker thought rye would be a more profitable crop, if as much attention was paid to it, than corn—thought it was not so useful.

Hon. Mr. Calhoun referred to the difficul-

ties with which the farmer has to contend, and the great diversity of opinion upon a subject so familiar as farming. It was obvious from these discussions, that we could find no substantial authority in regard to the cultivation of corn, even among the farmers themselves. He thought the subject of understanding the character of the soil was too much overlooked, in all crops. Every farmer ought to understand everything in relation to the nature of his soil, and what kinds of soil are best adapted to the different crops, and the best kinds of manures to crops. The want of this knowledge was a serious embarrassment to the farmer. The best remedy for this deficiency in practical knowledge, he thought to be the establishment of a model farm, when science might be brought to the aid of agriculture, and experiments tested in such a manner as to show their importance, and to furnish authority upon which the young farmer, especially, might rely. He thought that if those farmers who had the means would contribute the amount of money they lose in making experiments themselves, to this object, much more light would be obtained upon the subject.—*Mass. Spy.*

True Farming--Great Farming on a Small Farm.

A. Macomber, of Spring Port, Cayuga county, has a farm of only sixty acres, including two public roads. It was originally covered with oak and hickory trees; the soil a clay loam, with limestone pebbles. He keeps three horses, four cows, and thirty-five sheep. His crop this year is 652 bushels plump wheat; 150 bushels oats; five acres corn, very stout; four acres cloverseed; between 30 and 40 tons hay, and more pasture than can be found on any other farm of the size in the county of Cayuga.

He always sows his corn ground with wheat; first haul off the corn, harrow, then plough, then seed, then harrow again three times, and sow *plenty* of cloverseed in the spring. He makes all the straw into manure, and puts most of it on his corn ground. The great secret of this man's success, is in keeping his ground covered either with grain crops, or a heavy mat of clover and timothy grass. He considers the exposure of a naked fallow to the sun of July and August, a sort of necessary evil; that the soil, to be kept strong, should be covered.

In addition to barn-yard manure, Mr. Macomber applies plaster, salt, and ashes broadcast to his crops. He says he was induced to take the Genesee Farmer many years ago. Although no friend to too many experiments or theories, he is a very decided advocate for the union of science with agriculture.

Now I am aware that many farmers who read the foregoing, will say that Macomber must either hire a great deal of *help*, or work very hard himself. Very true; but has he not the product to pay for the labour. He himself avers that the labour of harvesting and securing his crops is the most formidable part of his farm labour. How much better thus to expend money to harvest and secure crops, than waste money and labour in a tardy, slovenly, ill-directed course of farming, which gives no crops to the harvest, or very poor ones.

Such men as A. Macomber are beforehand and in season with all their work; their corn leaves never bleach iu a wet season nor curl in a dry one. They keep no old sward to hybernate worms, the affliction of all lazy farmers as well as of those who have too many arable acres. They are the favourites of fortune, because fortune delights to favour those only who court her favours. It is in the tact, intelligence, and good will with which they apply their labours, rather than in the labour itself, which enables them to succeed so well! Such men are strangers to that hopeless egotism, which is the curse of all progress—the nurse of self-willed ignorance and hoary error.—*Genesee Farmer.*

To Make Good Butter in Winter.—

We often hear the complaint that butter made in winter is poor. Ours was so for several seasons. It was very slow in coming, and frothy, white, and sometimes bitter; while butter made from the same kind of milk in the warm season was good. I devised many plans for improvement, such as throwing in salt, warm milk, scalding cream, &c., but to no purpose. At length I scalded my milk when brought from the cow, afterwards setting it in either a cold or a warm place, as was most convenient. I mean, I communicated a sufficient heat to destroy the effect which frosty feed has in autumn, or dry feed in winter upon it. Since which time we have made, with 15 minutes churning, purer, sweeter, and more yellow butter than we ever made in summer—and sometimes from the frozen cream gradually warmed. And were it not that the increase of manufactures, the pursuit of fashion, and other causes combined, render helping hands in a dairy room now-a-days very scarce, I should be at the trouble of scalding my milk before setting it during the summer, as well as in the winter; for surely, butter made in this way, possesses a delicious richness and dryness which cannot be found in any other. —*Cultivator.*

Turkeys.

If we call to mind the many and valuable acquisitions from both the animal and vegetable kingdom which have been made subservient to the use of man within comparatively a very recent period, it is not too much to believe that others, of nearly or quite equal value, still remain to reward the labour and pains of a persevering search. There is the whole of central Africa, central Australia, great part of China and northern India,—which have already afforded us so much—and innumerable half-explored or unexplored islands, all waiting to be ransacked for our benefit. And without depending upon those distant regions, we know not yet what we may find at home; seeing that the delicious Seakale—an esculent whose merits are yet unknown to many a family of competent means, living in retirement—has only within the last few years sprung up under our very feet; and the Capercali, by an easy importation, has been rescued from extinction in Great Britain.

Amongst the living tributaries to the luxury of man, the turkey is an example of the results yet to be expected from the exploring spirit of our day. It is the most recent, and, except the hen and the goose, the most valuable of our domesticated birds. We may, indeed, call it quite a new introduction; for what, after all, is a period of 300 years, compared with the time during which man has had dominion over the earth and its brute inhabitants? The obscurity which hangs over the transmission of the turkey from America, and which there is little chance of clearing away, except by industrious ferreting amongst old family records and memorandum books, shows that those who brought it to the old world had no idea of the value of what they were importing; but probably regarded it like any other remarkable production of nature—a macaw or a tortoise. The young would be distributed among friends with the same feeling that golden pheasants and such like are with us; these again would thrive and increase, and the nation would suddenly find itself in the possession of a race, not of pleasing pets, but of valuable, prolific, and hardy stock of poultry. Such I take to be the history of the turkey in England; and the Zoological and Ornithological Societies may hereafter find that some creature that was disregarded, or undervalued, or even yet unobtained, will prove unexpectedly domestic and profitable—it may be the Cereopsis, some of the Indian Polylectrons, or the elegant Honduras turkey;—to further which great object of their association they cannot do better than communicate spare specimens, on the most liberal and encouraging terms, to such persons as they believe competent fairly to test their value.

The varieties of the domesticated turkey are not very distinct. The most so is the Norfolk; the others may all be swept into what is called the Cambridge breed—thus including the bustard and Dutch copper-coloured breeds, which, however, is as much cultivated in Norfolk as the old local stock, and birds of which kind often pass for true Norfolks, because they have been procured from that county. The real Norfolk turkey is more hardy, but less ornamental than the others, and of smaller size. It is entirely black, except the red skin about the head, and a brownish tip to the feathers of the tail and some of those of the back. This gives the bird a rusty appearance, like an old piece of well-worn cotton velvet. The Cambridge sort, when black, have a beautifully shining blueish tinge, like a well-polished boot. The chicks of the Norfolks are black, with occasionally white patches about the head; those of the Cambridge variety are mottled all over with a brownish grey, and are of taller and slenderer proportions. The white individuals of either variety are accidental; this colour is scarcely permanent in their offspring; they are tender, not pleasing to every eye, and altogether not to be recommended. The plumage of the Cambridge breed varies very much; sometimes it is entirely made up of shades of reddish brown and grey, when it is called the bustard breed; sometimes of grey, black, and white, but frequently it approaches very nearly to what we see figured as the wild bird. In the "Naturalist's Library," the hen of the wild turkey, copied from Audubon, is represented with a hairy tuft like that of the cock hanging from her breast. I have not seen this in the tame variety. A hen in my possession that will be four years old next spring (1848) has no symptom of its appearance. The reason why the turkeys seen in our poultry yards do not vie in splendor of plumage with their untamed brethren, is that we do not let them live long enough. A creature that does not attain its full growth till its fifth or sixth year, we kill at the latest in the second, to the evident deterioration of our stock. But let three or four well selected Cambridge turkeys be retained to their really adult state, and well fed meanwhile, and they will quite recompense their keeper by their beauty in full plumage, by their glancing hues of gilded green and purple, their lovely shades of brown, bronze and black, and the pearly lustre that radiates from their polished feathers. In default of

wild specimens, birds like these are sought to complete collections of stuffed birds.

The demand for such large birds among the fowl-dealers, and the temptation to fat them before they arrive at this stage, are so great, that few farmers' wives can resist sending their 18 or 20 lb. "stag"* to market, while a young cock of the year, they think, will answer every purpose next spring as well. Some even deem it an extravagance to keep a turkey-cock at all, if they have not more than two hens, which they would send on a visit of a day or two to a neighbour who has a male bird. The time when the hens require this change of air in spring may be known by their lying down on the ground, as if they were unwell, doing so immediately again, if taken up and made to walk on, which apparent languor is accompanied by a lack-a-daisical love-sick expression of countenance. Last Christmas we ate or gave away all our turkeys—including a magnificent stag, whose image haunts us still—except one hen. The above mentioned plan was necessarily adopted, and the result was from eleven eggs, eight chicks so strong as almost to rear themselves.

When the hen has once selected a spot for her nest, she will continue to lay there till the time of incubation, so that the eggs may be brought home from day to day, there being no need of a nest egg, as with the common fowl. She will lay from 15 to 20 eggs, more or less. Her determination to sit will be known by her constantly remaining on the nest, though empty; and as it is seldom in a position sufficiently secure against the weather or pilferers, a nest should be prepared for her by placing some straw, with her eggs, on the floor of a convenient out-house. She should then be brought home and gently and kindly placed upon it. It is a most pleasing sight to witness the satisfaction with which the bird takes her long-lost eggs, turning them about, placing them with her bill in the most suitable positions, packing the straw tightly around and under them, and finally sinking upon them with the quiet joy of anticipated maternity.

Thirteen eggs are enough to give her; a large hen might cover more; but a few strong, well-hatched chicks, are better than a large brood of weaklings, that have been delayed in the shell, perhaps twelve hours over the time, from insufficient warmth. At the end of a week it is usual to add two or three fowl's eggs, "to teach the young turkeys to peck." The plan is not a bad one; the activity of the chickens does stir up some emulation in their larger brethren; the eggs take but little room in the nest; and at the end of the summer you have two or three very fine fowls, all the plumper for the extra diet they have shared with the little turkeys.

Some ladies believe it necessary to turn the eggs once a day; but the hen does that herself many times a day. If the eggs are marked and you notice their position when she leaves the nest, you will never find them arranged in the same order. A person who obtained 99 chicks from 100 eggs, took the great trouble to turn every egg every day with her own hand, during the whole time of incubation. The result *appears* favourable; but, in fact, only amounts to this, that such officiousness did no harm with such a good, patient, quiet creature as the sitting turkey is, but it would probably have worried and annoyed any other bird into addling her whole clutch. We will at once reject, as utterly absurd and unnatural, all directions to immerse or "try" the eggs in a pail of water, hot or cold.

In four weeks the little birds will be hatched; and then, how are they to be reared? Some books tell you to plunge them in cold water, to strengthen them: those that survive will certainly be hardy birds.* Others say, "make them swallow a whole peppercorn;" which is as if we were to cram a London pippin down the throat of a newborn babe. Others, again, say, "give them a little ale, beer or wine." We know unhappily, that some mothers are wicked

* In Norfolk, turkey-cocks are called stags from their second year upwards.

* Sir J. S. Sebright exposes the folly of endeavouring to make young creatures robust by undue exposure to cold and hardship, an experiment which some men and women are cruel enough to try upon their own offspring. Air and exercise increase the strength of any growing animal, but cold and hunger only dwarf and weaken. We see robust children in extremely poor families, not because they are poor, but because if they were not robust, they would not be alive at all. Sir John, in his "Treatise on improving the Breeds of Domestic Animals," pp. 15, 16, says, "In cold and barren countries no animals can live to the age of maturity but those that have strong constitutions; the weak and the unhealthy do not live to propagate their infirmities, as is too often the case with our domestic animals. To this I attribute the peculiar hardiness of the horses, cattle, and sheep, bred in mountainous countries, more than to their having been inured to the severity of the climate; for our domestic animals do not become more hardy by being exposed when young, to cold and hunger; animals so treated, will not, when arrived at the age of maturity, endure so much hrdship as those who have been better kept in their infant state."

enough to give their infants gin, and we know the consequences.

Give them nothing; do nothing to them; let them be in the nest under the shelter of their mother's wings, at least eight or ten hours; if hatched in the afternoon, till the following morning. Then place her on the grass, in the sun, under a roomy coop. If the weather be fine she may be stationed where you choose by a long piece of flannel list tied round one leg, and fastened to a stump or a stone. But the boarded coop saves her ever-watchful anxiety from the dread of enemies above and behind—the carrion-crow, the hawk, the rat, the weasel; and also protects herself—she will protect her young—from the sudden showers of summer. Offer at first a few crumbs of bread; the little ones, for some hours, will be in no hurry to eat; but when they do begin, supply them constantly and abundantly with chopped egg, shreds of meat and fat, curd, boiled rice mixed with cress, lettuce, and the green of onions. Melted mutton suet poured over barley-meal, and cut up when cold; also bullock's liver boiled and minced, are excellent things. The quantity consumed costs nothing; the attention to supply it is everything.

The young of the turkey afford a remarkable instance of hereditary and transmitted habits. From having been tended for many generations with so much care, they appear naturally to expect it almost as soon as they are released from the shell. We are told that young pointers, the descendants of well-educated dogs, will point at the scent of game without any previous training; and so turkey chicks seem to wait for the attention of man before they can have any experience of the value or nature of those attentions. Food which they would refuse from a platter, they will peck greedily from the palm of a hand; a crumb which would be disdained if seen accidentally on the ground, will be relished from the tip of a finger. The proverb that "the master's eye fattens the horse," is applicable to them not in a metaphorical, but in a literal sense; for they certainly take their food with a better appetite if their keeper stays to distribute it, and *see* them eat it, than if he merely set it down and left them to help themselves.

I believe this to be the case with more domesticated animals than we are aware of, and appears natural enough if we remember how much more we enjoy a meal in the society of those we love and respect, than if we partook of it in indifferent or disagreeable company.

However, there can be no doubt that young turkeys pampered and spoiled for about three hundred generations, have at length acquired an innate disposition to rely on the care of man. Sir Humphrey Davy, in his "Salamonia," believes that a like hereditary instinct is engendered even in fishes, believing that the trout, &c., in unfrequented rivers, are more unsuspicious of artificial flies than those in the streams of Great Britain. "This," he says, "may be fancy, yet I have referred it to a kind of hereditary disposition, which has been formed and transmitted from their progenitors."

At any rate, it is neither a dream nor a guess with young turkey-chicks, to which we will now return. A sitting of wild turkey's eggs does not often fall into the hands of an American game-keeper, if such a person there be, but I am afraid he would find his brood more shy and troublesome than the shyest of partridges or pheasants.

The turkeys, then, are hatched, and we are rearing them. Abundant food for the mother and her young, constant attention to their wants, are the grand desiderata. An open glade in a grove, with long grass, and shrubs here and there, is the best possible location. A great deal is said about clear and fresh water for fowls; but I have observed that if left to their own choice, they will be as content and healthy with the rinsings of the scullery, or the muddiest pool, as with the purest spring. The long grass will afford them cover from the birds of prey; the hen will herself drive off four-footed enemies with great courage. I have been amused with the fury with which a mother turkey has pursued a squirrel, till it took refuge in the branches overhead; what instinctive fear urged her I know not. Insects, too, will abound in such a situation. When the little creatures are three or four days old, they will watch each fly that alights on a neighbouring flower, fix it with mesmeric intensity, and by slow approach often succeed in their final rush. But in the best position you can station them, forget them not for one hour in the day. If you do, the little turkeys will for a time loudly yelp "Ricordati di me," "O then remember me," in notes less melodious than those of a *prima donna*, and then they will be sulky and silent. When you at length bring their delayed meal, some will eat, some will not. Those that will not, can only be saved by a method at all other times unjustifiable; namely, by cramming; but it must be done most gently. The soft crumb of bread rolled into miniature sausages, should be introduced till their crops are full. For drink, many would give wine, I advise milk. The bird wants material, not stimulant. It has been actually wire-drawn. It

has grown all the hours you have neglected it, without anything to grow from. Like a young plant in the fine spring season, it will and must grow; but it has no roots in the fertile earth to obtain incessant nourishment. The roots which supply its growth are in its stomach, which it is your office to replenish. Prevention is better than cure. Such a case ought never to occur in a well-cared for poultry-yard.

When two hens hatch at or near the same time, the two broods may be given to one mother, and the other hen turned out to range. If kept from the sound and sight of her little ones for a few days, she will not pine like the common hen, but will shortly recommence laying, and so produce a later hatch that will be very acceptable the following February and March. Sometimes two hens will choose to sit and lay in the same nest, like the wild birds mentioned by Audubon; but it is better not permitted. They will not quarrel, but alternately steal each other's eggs, and run the chance of addling all. A frequent practice is to hatch spare turkeys' eggs under common hens. This answers well in fine dry summers, but not in wet cold seasons. The turkey-poults require to be brooded much longer than chickens; the poor hen will be seen vainly endeavouring to shelter and warm young turkeys nearly as big as herself, till she gives up the task in despair, and leaves them to shift for themselves. It is better to transfer the chicks as soon as hatched to a turkey, and give the hen some fowl's eggs to go on with another three weeks. The improved and less rambling disposition of turkeys that have been reared by a hen is, unfortunately, all imagination, notwithstanding what Cobbett has so beautifully written on the subject. The instinct of the turkey is no more altered by this mode of education than the migrations of the cuckoo are checked by its being brought up by hedge-sparrow. The only way to keep turkeys from rambling, is to feed them well and regularly at home.

The time when the turkey hen may be allowed full liberty with her brood, depends so much on season, situation, &c., that it must be left to the exercise of the keeper's judgment. A safe rule may be fixed at the season called "shooting the red," a "disease," as some compilers are pleased to term it; being about as much a disease as when the eldest son of the turkey's master and mistress shoots his beard. When young turkeys approach the size of a partridge, or before, the granular fleshy excrescences on the head and neck begin to appear; soon after, the whole plumage, particularly the tail feathers, start into rapid growth, and the "disease" is only to be counteracted by liberal nourishment. If let loose at this time they will obtain much by foraging, and still be thankful for all you choose to give them. Caraway seeds, as a tonic, are a great secret with some professional people. They will doubtless be beneficial, if added to plenty of barley, boiled potatoes, chopped vegetables, and refuse meat. And now is the time that turkeys begin to be troublesome and voracious. What can you expect else from a creature that is to grow from the size of a lark to 12 or 14 lbs. in eight or nine months? "Corn sacks, coffers for oats, barn-swallowers, ill neighbours to Peasen," are epithets deservedly earned. They will jump into the potatoe ground, scratch the ridges on one side, eat every grub wireworm, or beetle that they find, and every half-grown potatoe. From thence they will proceed to the Swedes; before the bulbs are formed they will strip the green from the leaves, thereby checking the subsequent growth of the root. At a subsequent period they will do the same to the white turnips, and here and there take a piece out of the turnip itself. They are seldom large enough before harvest to make so much havoc among the standing corn, as cocks and hens and guinea-fowl, or they have not yet acquired the taste for it; but when the young wheat comes up in October and November, they will exhibit their graminiverous propensities, to the great disadvantage of the farmer. The farmer's wife sees them not, says nothing, but at Christmas boasts of the large amount of her turkey money. One great merit in old birds—besides their ornamental value, which is our special recommendation—is that in situations where nuts, acorns, and mast are to be had, they will lead off their brood to these, and comparatively—that is all—abstain from ravaging other crops. It is, therefore, not fair for a small occupier to be overstocked with turkeys,—as is too often the case, and with other things also,—and then to let them loose, like so many harpies, to devastate and plunder their neighbour's fields.

Soon after Michaelmas, it will be time to think of fatting a portion of them. Some families require turkeys very early in the season; but they are like every other immature production, inferior in quality. To eat turkey poults is a wasteful piece of luxury; those who order them are occasionally deceived by a small hen of the previous year. In the Roman markets hen turkeys sell for a bajocco (halpenny) a pound more than the cock, and there are turkey butchers, of whom you may buy the half or a quarter of a bird.

A hen will be five or six weeks in fatting, a large stag two months or longer, to bring him to his full weight. The best diet is barley-meal mixed with water, given in troughs that have a flat board over them, to keep dirt from falling in. A turnip with the leaves attached, or a hearted cabbage, may now and then be thrown down to amuse them. Some use plain oats, but barley-meal is preferable, acting more quickly. Cramming is unnecessary, though it may hasten the process. When they have arrived at the desired degree of fatness, those which are not wanted for immediate use must have no more food given them than is just sufficient to keep them in that state, otherwise the flesh will become red and inflamed, and of course less palatable and wholesome. The turkey differs from the rest of our poultry in being fit for the table after its youth is past. Very few of the large turkeys that are brought to market are less than 18 months old; many are double that age. Nor are they the worse, provided the lady of the house be informed of the circumstance, and so enabled to leave a due interim between the killing and the cooking.

The hen turkey, contrary to the statements of some writers, does now and then erect her tail and strut like the male, and that, too, without any diminution of her feminine virtues. The manners of the cock are not prepossessing; he is vain, ungallant, careless of his young, a bully, though not always a coward, the most selfish creature in the poultry-yard, except the musk-drake, sometimes also apt to be seized with odd fancies that render him useless. Their supposed antipathy to the colour of red or scarlet, I believe to be an unfounded prejudice. They display less individual attachment to man than most other poultry, though they have equally, or more, thrown themselves on the protection of the race of mankind. They are called stupid, but mark the intelligence and amiability displayed by every look and action of a hen with her young. And yet little real alteration of her former manner is apparent. The strut that seemed foolishly pompous now strikes us as justly proud and cautious; the eye in which only affectation was apparent, now glances with anxiety and beams with tenderness. The discordant voice has now an object in its call, and may be heard almost to whisper in subdued notes of gentle affection. Thus even, in the poor bird that we rear, admire and kill, a higher charm and elevation is added by the exercise of those holy affections which the beneficent Creator of all has given us for our comfort.—*London Agricultural Gazette.*

Digestion.

Hunger and thirst are the preliminary steps to digestion; they constitute a law implanted in the animal economy, for the purpose of inducing the living being to take such nourishment as is required to sustain that waste of the system which animated nature is continually undergoing. If the dictates of the sensation of hunger and thirst are rationally obeyed, satisfaction and healthy digestion are the result; but if, on the contrary, these important sensations are neglected, weakness and disease must necessarily ensue. Appetite, or, in its more advanced stage, hunger, teaches animals to seek for solid food, and thirst suggests the propriety of rendering the solid mass more pulpy and dilute by the employment of drink. Experience and reason, both in man and brutes, must in some measure direct the selection of the proper objects to be employed for these purposes. I was some years ago consulted by a worthy individual with regard to the propriety of fasting, as a religious observance. I told him that the sensation of hunger and thirst constituted a most important law in the animal economy, destined by the Creator for the most beneficent purposes; that it ought to be obeyed as a matter of duty, and that if infringed, some prejudicial result would necessarily ensue: because it is no argument in favour of any such experiment upon human life that existence does not terminate upon its adoption, or that the symptoms of some frightful disease are not instantly ushered in. The seeds of future mischief may be sown by one experiment, and may only lie dormant until a second or succeeding infringement shall cause them to spring forth into living activity. In the course of an extensive series of experiments upon cows, it was found that, when they were not supplied with sufficient food during one day, the product of milk was a day or two in reaching its former average; thus demonstrating that the animal had been weakened by the abstinence, inasmuch as it took a longer period to reach its ordinary condition than was required to reduce it. The milk, in such an experiment, corresponds with the muscle and fatty portions of the body of animals which do not supply milk: hence abstinence in all animals must be followed by a diminution of the weight of the body. It has been well remarked by Liebig, that "in the process of starvation it is not only the fat which disappears, but also

by degrees all such of the solids as are capable of being dissolved." In the wasted bodies of those who have suffered starvation, the muscles are shrunk and unnaturally soft, and have lost their contractility: all these parts of the body which were capable of entering into the state of motion have served to protect the remainder of the frame from the destructive influence of the atmosphere. There is no difference in this respect between one set of animals and another. Civilized and savage men, wild and domestic animals, must all be classed under the same category.

In the human species, a morsel of food is grasped by the front teeth of both jaws, which are each supplied with sixteen teeth, making thirty-two in all. In those animals which chew the cud, as they have only one row of teeth, the food is less firmly grasped by the jaws, and there is, therefore, a greater necessity that it should be of a soft and pliable nature. By the assistance of the lips, jaws, tongue, and auxiliary muscles, the food is conveyed into the cavity of the mouth, and by the aid of the tongue and lateral motion of the mouth, it is placed between the opposing jaws, where it is masticated or ground to a proper consistence. But the action of the jaws in grinding the morsel introduced between them, at the same time, elicits the compressing power of the muscles of the cheek upon the parotid gland, which is situated in man in front of the ear, and expels its secreted fluid, the saliva, into the mouth, to assist in comminuting the nutritive matter. Besides this mechanical action, there is, however, a nervous sympathy called into operation. The masticated matter acts upon the tongue and adjacent parts, inducing a sympathy with the glands placed under the tongue, and causes them to pour out their copious contents. The object of mastication or chewing is, therefore, to reduce the food to such a consistence as shall fit it for its reception and proper digestion in the stomach. This is well illustrated in the instance of animals which are not supplied with teeth.

The common fowl, for example, is destitute of these grinding apparatus; but it has a muscular mechanism, termed the gizzard, which powerfully compresses the introduced food, and by means of pebbles and stones, which are a necessary article of food with the class of animals referred to, an artificial substitute for the teeth is provided. In graminivorous animals, we shall find that a substitute for the second row of teeth is provided in the operation of rumination, or chewing the cud. From attention to these facts, therefore, we are taught that the preparatory step of digestion consists in the fine division of solid food by means of the apparatus set apart in the mouth for this purpose, and its mixture with a certain amount of fluid saliva, to render it more dilute.

The importance of the proper grinding of the food, and of rendering it as soluble as possible, can be well appreciated by such individuals as have been the subjects of indigestion from the eructation of morsels of food, of gases, and of acid liquors. It is scarcely necessary to remark, that similar rules are applicable to the inferior animals, and more particularly in the state of confinement to which most of them are more or less subjected, when they are made to minister to the wants of the human species.—*Thomson's Researches on the Food of Animals.*

From the American Agriculturist.

Hydraulics for Farmers.

Every farmer, especially in a northern climate, must be aware that the comfort of his stock through the inclemency of winter is essential to carrying them through that season in the most economical and of course the most profitable manner. To insure this degree of comfort, sheds and stables in which they are protected from driving storms, high winds, and intense cold, are indispensably necessary; for it is now a well established fact with our best stock growers, that the expense of such sheds and stables is fully liquidated by the saving of fodder, and the increase of thrift in the animals in a very few years, probably before the buildings erected for their benefit need their first repairs. And there are other objects gained by the housing system for stock. They are rendered more docile by the operation. The cow or the ox that has been accustomed to be frequently or almost universally housed through the inclement season from the early days of "calfhood," will almost invariably possess excellencies which are seldom found among animals doomed to roam at large and seek shelter where it may, and sometimes where it may not be found—behind buildings or fences, the disjointed sides of which make but miserable pretensions to the objects to which the helpless and ill-fated animal appropriates them.

There is another subject connected with the thrift of the farm yard which is no less important than nice warm stables and good comfortable sheds. That is *water for stock* of which they need a regular supply, as they do of feed or protection. This fact is unquestionable, and therefore needs no comments, as every observing farmer knows full well; yet how often it is the case that the poor

animal is turned adrift to contend with piercing winds and almost impenetrable drifts of snow, while it plods its way to the well remembered spring, the pure, cool waters of which, so often allayed the feverish thirst of summer, to sip the healthful draught that winter's wants require. What hooking and pushing and crowding are often witnessed by the way, and when the already enraged group gather round and in angry dispute, contest each others claim to the sparkling fountain! and how they look, and how they feel when they return to the barn after such a pilgrimage, attended with such conflicts!

Many of our farmers, it is true, have seen the inconveniences and unprofitableness of such a state of things, and have remedied them by introducing pure streams of water into their yards, so that the animal may go to the tub at any time, or at all times when liberated from the stable to take the libations that nature so promptly demands. Those who have done so, have found economy in this, though in some instances, the first cost, from the distance of the spring, involved considerable expense, by the saving of their own time, the saving of the comfort and thrift of the animal, and the saving of manure, which, instead of being left in a line from the barn to the spring and around the spring where it is not wanted, is now deposited in the yard, ready at the farmer's move to be taken to the spot where its value will be most advantageously realized. Hence it must be concluded that it is for the farmer's interest to have a constant supply of pure water in or very near his farm yard, in order that his animals may drink singly or together, when, and as often as they please.

The frequency with which farm buildings are situated on elevations, however, seems in many instances to preclude the possibility of introducing water to them, from the springs, which are often all situated so far below, as to shut off the possibility of getting supplies from them by the usual method of an aqueduct. But another method to accomplish this object has been found, and from its utility has been liberally adopted, and this with a success fully equal to the expectations of all who have adopted it. I refer to the introduction of Benson's hydraulic ram, not that hydraulic rams are a new thing, for Montgolfier, a Frenchman, invented one long ago; but this of Benson's, so simple in construction, so easily kept in repair, and so regular in its operations, is to us northerners altogether new. The first of Benson's I saw, was set up about two miles from my residence, as an experiment in September, 1846. The spring was from ten to twelve rods from the buildings, and down a bank, the descent of which was about forty feet. At the bottom of this bank the farm animals had been obliged to travel through storm, wind, snow, and mud, and over ice, for a full half century or more, and up this doleful way the water for the family use had been carried in buckets, by hand (who does not feel himself growing stooping, while he thinks of it,) for the same long period. The operation of the machine was so satisfactory that the farmer became the purchaser, and in the November following, made it a fixture of his premises, and since that time, has had through its agency, an abundant supply of water for his stock in his yard, and for household purposes, at his door. In a recent conversation with him upon its utility, after a year's trial, he expressed his full satisfaction in its operation and thought that no consideration would induce him to forego the convenience it affords. And thus we see, that a way is fully and completely provided whereby those whose springs are situated lower than their buildings can have them brought within a convenient distance, or if they choose, carried into every stable, or every apartment of the dwelling, with as much facility as convenience requires, at but a little more expense in the outfit than water can be brought down hill in a common aqueduct, and with as great prospect of permanent success in the former as in the latter instance.

W. Bacon.

Richmond, Mass., Jan., 1848.

Long Island Peaches.

It has long been the opinion of many, that the soil and atmosphere of Long Island, from its proximity to the ocean, are unfavourable to the successful cultivation of several of our garden fruits, particularly that of the peach. But when it is considered that the little peninsula of Delaware, which is but a trifle larger than Long Island, produces the peach in the greatest abundance and in the highest state of perfection, all arguments like the preceding will appear fallacious. Moreover, we have an instance before us, where the cultivation of the peach on Long Island has been crowned with the most complete success.

On the 1st of October last, we visited the peach orchards of Mr. John I. Stoothoff, situated on the Rockaway road, directly at the head of Jamaica Bay, six miles from the Atlantic, and two miles south of the village of Jamaica, where they receive the uninterrupted effects of salt air and ocean winds. These orchards are two in number, one con-

taining originally 2,500 trees, five years planted, and the other 1,050 trees, four years from the bud. The soil in which they are planted, consists of a very fine, light sandy loam, poorer than the lands at Flatbush, and similar in character to those of Islip, and several points farther east. The trees were generally planted from 18 to 20 feet apart, and, with the exception of a portion of those of the larger orchard, all appeared exceedingly vigorous, although they had somewhat suffered from mutilation in gathering the fruit. Mr. Stoothoff was about completing his harvest, having been engaged in sending his fruit to the New York markets, since the 12th of August, between which time and the 3rd of October, he sold 2,637 baskets, bringing, in the aggregate, $2,600 18. The trees from which the fruit had not been plucked, at the time of our visit, were actually bending to the ground with excessive weight, and finer-looking peaches we never saw. The varieties principally cultivated, were the red rareripe, early and late malacotones, lemon clings, and Morris whites.

At the time of planting the trees, Mr. Stoothoff cuts off the tap-root, if there be any, in order that the other roots may take a horizontal direction near the surface of the ground, and receive the full benefit of the manure, and the vivifying influences of rains and dews. The first year after he plants his trees, he cuts off the trunks or stems from two and a half to three feet above the ground, in order to allow the future branches to start low and form a bushy head. In winter he prunes his trees, by cutting away all dead wood, and in summer he thins out the superfluous branches, in order to admit the sun and air. In the month of June, and again in September, the earth is drawn from each tree, the roots carefully scraped, all borers cut out with a knife, and the earth properly put back in its place.

Mr. Stoothoff, for two or three years past, has been in the practice of planting asparagus and peas in his orchards, manuring them with wood ashes and stable or barn-yard dung. The cultivation of garden vegetables among fruit trees, however, he does not fully approve. He thinks it preferable to keep his orchards clear of weeds by frequently scratching over the surface with a cultivator, and manuring each tree, within a foot or two of the trunk, with six to ten fish, (moss bunkers,) covering them over with three or four inches of earth. To the last named circumstances and the great care observed in removing the tap-root and extracting the borer, it is probable the success of his peach culture mainly depends.

Mr. Stoothoff has kept an exact account of the products of his two orchards the season past, from which we copy the following, including the amount of sales:—

2,780	bunches of asparagus,	$418 10
431	bushels of early peas,	425 50
261	" late "	185 75
41	" Sickel "	17 25
2,637	baskets of peaches,	2,600 18
		$3,646 78

These orchards contain about twenty-eight acres.—*American Agriculturist.*

Pomeranian Cabbage.

Last spring, says *J. E. Teschemacher*, in a recent communication to Hovey's Horticultural Magazine. Mr. H. Colman sent me from Paris a small quantity of cabbage seed, labelled: "given me as seed of a most extraordinary cabbage.—I have not seen it." This seed I distributed amongst many of my friends, and sowed some myself. When it first came up, the seedlings so much resembled those of the Couve tronchuda sowed in an adjoining patch, that I could not then tell the difference. The result is as follows. The cabbage is of the pine apple form, weighs from six to twelve or fifteen lbs. each, is the purest and sweetest vegetable of the tribe, and not a single plant of all mine, or those of my friends, failed forming fine, hard, solid, heads.

One plant, of which the head was broken off soon after planting out, sent forth four shoots, each of which formed a fine solid head; the four weighed 12 1-2 pounds. Mr. L. Stone, of Watertown, to whom I gave some seed, exhibited this cabbage at the annual exhibition of our Horticultural Society, and he was kind enough to distribute plants all around, last autumn, for the purpose of being kept through the winter for seeding the approaching summer, so that I hope we shall have plenty of seed for next season. It seems to me highly probable that it will take the place of the large drumhead, as four or five of these will grow in the same space as is required for two of the others; add to this, that the flavour is far superior, and the faculty of heading well, unfailing.

Although I have no name for it, I think it very probable that it is the Pomeranian Cabbage, just introduced into England or Scotland, where it met with much commendation.

TABULAR ESTIMATE OF THE CROPS FOR 1847.

State or Territory.	*Population in 1840.*	*Present estimated popu'n.*	*Wheat.*	*Barley.*	*Oats.*	*Rye.*	*Buckwheat.*	*Indian corn.*
			Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
Maine - - - -	501,973	600,000	890,000	286,650	1,720,000	195,000	76,000	2,890,000
New Hampshire - -	284,574	300,000	610,000	129,150	2,100,000	460,000	169,000	2,280,000
Massachusetts - -	737,699	850,000	256,000	170,100	2,000,000	620,000	138,000	3,410,000
Rhode Island - -	108,830	130,000	4,500	54,000	210,000	50,000	4,500	800,000
Connecticut - - -	309,978	330,000	125,000	28,000	1,810,000	1,200,000	480,000	3,180,000
Vermont - - -	291,948	302,000	664,000	55,000	3,905,000	350,000	330,000	2,100,000
New York - - -	2,428,921	2,780,000	14,500,000	3,931,000	26,200,000	3,650,000	3,660,000	16,000,000
New Jersey - - -	373,306	416,000	1,100,000	10,000	5,228,000	3,050,000	980,000	8,000,000
Pennsylvania - -	1,724,033	2,125,000	14,150,000	150,000	18,835,000	12,000,000	3,600,000	20,200,000
Delaware - - -	78,085	80,000	410,000	4,400	650,000	55,000	14,000	3,620,000
Maryland - - -	470,019	405,000	4,960,000	2,900	1,860,000	975,000	115,000	8,300,000
Virginia - - -	1,239,797	1,270,000	12,000,000	90,000	10,000,000	1,500,000	260,000	36,500,000
North Carolina - -	753,419	765,000	2,350,000	4,000	3,507,000	235,000	18,000	25,000,000
South Carolina - -	594,398	605,000	1,300,000	4,500	1,000,000	54,000	—	10,600,000
Georgia - - -	691,392	800,000	1,950,000	12,300	1,140,000	70,000	—	25,000,000
Alabama - - -	590,756	690,000	1,200,000	7,500	1,831,000	75,000	—	26,000,000
Mississippi - - -	375,651	640,000	500,000	2,000	1,378,000	23,000	—	16,000,000
Louisiana - - -	352,411	470,000	—	—	—	2,200	—	9,000,000
Tennessee - - -	829,210	950,000	8,750,000	6,500	9,918,000	390,000	28,000	74,000,000
Kentucky - - -	779,828	855,000	6,000,000	18,000	14,100,000	2,650,000	16,000	62,000,000
Chio - - - - -	1,519,467	1,850,000	16,800,060	240,000	26,500,000	1,000,000	1,200,000	66,000,000
Indiana - - -	685,866	960,000	7,500,000	39,000	15,290,000	250,000	100,000	38,000,000
Illinois - - -	476,183	735,000	4,900,000	116,000	4,200,000	155,000	120,000	33,000,000
Missouri - - -	483,112	600,000	1,750,000	13,000	6,020,000	86,000	25,000	25,000,000
Arkansas - - -	97,574	152,400	200,000	1,000	440,000	10,000	—	7,000,000
Michigan - - -	212,267	370,000	8,000,000	210,000	5,500,000	90,000	290,000	6,500,000
Florida - - -	54,477	75,000	—	—	10,000	—	—	1,000,000
Wisconsin Territory -	30,945	215,000	1,200,000	30,000	1,500,000	8,000	30,000	1,000,000
Iowa Territory - -	43,112	130,000	1,000,000	350,000	1,000,000	12,000	20,000	2,900,000
Texas - - -	—	140,000	1,110,000	—	—	—	—	1,500,000
District of Columbia -	43,712	46,000	16,000	—	15,000	7,500	—	45,000
Oregon - - -	—	20,000	50,000	—	—	—	—	525,000
	17,069,452	20,746,000	114,245,50	5,649,950	167,867,000	29,222,700	11,673,500	539,350,000

TABULAR ESTIMATE OF THE CROPS FOR 1847.

State or Territory.	*Potatoes.*	*Hay.*	*Hemp.*	*Tobacco.*	*Cotton.*	*Rice.*	*Cocoons.*	*Sugar.*
	Bushels.	*Tons.*	*Tons.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Maine - - - -	7,800,000	1,113,000	—	—	—	—	550	500,000
New Hampshire - -	4,655,000	606,000	—	—	—	—	880	2,225,000
Massachusetts - -	4,308,000	682,000	—	135,000	—	—	40,000	530,000
Rhode Ishand - -	730,000	71,000	—	—	—	—	960	—
Connecticut - - -	2,832,000	550,000	—	806,000	—	—	200,000	45,000
Vermont - - -	7,086,000	1,250,000	—	—	—	—	8,000	10,500,000
New York - - -	24,000,000	3,800,000	—	30,000	—	—	5,000	12,800,000
New Jersey - - -	1,850.000	434,000	—	—	—	—	4,500	—
Pennsylvania - -	7,600,000	1,728,000	—	600,000	—	—	35,000	2,000,000
Delaware - - -	160,000	20,000	—	—	—	—	3,600	—
Maryland - - -	900,000	125,000	—	25,000,000	—	—	7,900	—
Virginia - - -	2,950,000	400,000	—	50,000,000	2,500,000	3.000	6,350	1,750,000
North Carolina - -	2,600,000	136,000	—	14,000,000	42,000,000	3,500,000	6,200	15,000
South Carolina - -	3,500,000	30,000	—	35,000	100,000,000	78,000,000	5,800	35,000
Georgia - - -	1,840,000	24,000	—	205,000	210,000,000	15,500,000	6,000	370,000
Alabama - - -	2,150,000	18,000	—	350,000	160,000,000	300,000	5,880	15,000
Mississippi - - -	2,050,000	800	—	200,000	250,000,000	1,000,000	250	—
Louisiana - - -	1,300,000	27,000	—	135,000	195,000,000	4,000,000	1,200	275,000,000
Tennessee - - -	2,700,000	45,000	1,000	35,000,000	35,000,000	10,000	20,000	530,000
Kentucky - - -	1,810,000	130,000	15,000	65,000,000	2,000,000	20,000	4,400	2,000,000
Ohio - - - -	4,644,000	1,400,000	600	9,000,000	—	—	35,000	5,000,000
Indiana - - -	2,350,000	385,000	550	3,880,000	—	—	800	6,400,000
Illinois - - -	2,100,000	365,000	600	2,288,000	—	7,500	3,200	615,000
Missouri - - -	1,050,000	80,000	10,000	14,000,000	—	—	230	500,000
Arkansas - - -	520,000	1,100	—	200,000	20,000,880	—	260	5,500
Michigan - - -	4,980,000	260,000	—	—	—	—	1,500	3,260,000
Florida - - -	350.000	1,200	—	300,000	15,000,000	700,000	500	300,000
Wisconsin Territory -	1,080,000	96,000	—	—	—	—	40	350,000
Iowa Territory - -	850,000	40,000	—	—	—	—	—	175,000
Texas - - - -	200,000	–	—	—	10,000,000	—	—	20,000
District of Columbia -	20,000	1,800	—	—	—	—	600	—
Oregon - - -	–	–	—	—	—	—	—	—
	100,965,000	13,819,900	27,750	220,164,000	1,041,500,000	103,040,500	404,600	324,940,500

Cultivation of Onions.

The cultivation of onions is in many sections an important business. In some parts of Connecticut, Massachusetts, and other places, they are raised in large quantities, and disposed of both for home consumption and for exportation. The following essay was written by John W. Proctor, Esq., and received a premium from the Essex (Mass.) Agricultural Society.

The culture of onions has increased so much, within a few years, in this vicinity, that it has become one of the staple products of the county. In the town of Danvers, more money is realized from the sale of the onion, than from any other product of the soil. Products of so much value, and commanding so much attention, are fit subjects of inquiry; and if there be any facts relating to their cultivation not generally known, it may be useful to have them brought forward.

In making these inquiries, our attention has been directed almost entirely to practical cultivators, without reference to scientific treatises. Our intention being to tell their story, as near as possible, in their own way.

We shall treat of the subject in the following order:

1. The preparation of the land.
2. The manure best adapted to promote the growth.
3. The raising and planting of the seed.
4. The care necessary to be applied while growing.
5. The blights and injuries to which the crop may be liable.
6. The time and manner of harvesting.

1. As to the preparation of the land.

Differing from most other crops, the onion grows well on the same land for an indefinite number of years. Instances of continued appropriation of the same pieces of land to the growing of onions, for *ten*, *fifteen*, *twenty*, and even *thirty years*, have come to our knowledge. It is the opinion of many that the crop is better, after the land has been thus used a few years, than at first. Whether this arises from any influence of the crop upon the soil, or is the effect of continued dressing of manures, we have no means of determining. This is certain, that the qualities of the soil necessary for the production of good crops are not exhausted by continued cultivation.

Rarely, if ever, have we known the onion sowed upon the turf when first turned over. It is usual to subdue and pulverize the soil, by the cultivation of corn, or some other crop. Not unfrequently the first year with corn, the second with carrots, and afterwards with onions. It is important, before the seed is sown, that the surface be mellow, finely pulverized, and clear of stones or other impediments, to the free and unobstructed use of the machine for this purpose. The finer and more uniformly mellow the surface is made, the better. Shallow ploughing, say from four to six inches deep, is usaally practiced. Once ploughing only in the spring, and frequent harrowings, are practiced. Before the ploughing, the dressing is usually spread upon the surface of the field, so as to be covered or intermixed in the furrow. The mingling and subdivision of it, is effected by the use of the harrow.

Whether it would not be advantageous occasionally, to stir the land to the full depth of the soil, is a point on which there is a difference of opinion; most of the cultivators inclining to the use of shallow ploughing only. There are some facts tending to show, that occasional deep stirring of the soil does no harm to the onion crop, but on the contrary is decidedly beneficial. As for instance, onions do better where carrots have grown the year preceding, than after any other crop. The carrot necessarily starts the soil to the depth of ten or twelve inches. Possibly there may be some other influence upon the soil from the plant itself. Our belief is, that the thorough and deep stirring of it, is the principal preparatory benefit.

2. The manure best adapted to promote the growth.

Any strong manure, well rotted and finely subdivided will answer. But the general impression seems to be, that manure from stables, where the horses are freely fed with grain, is the best; and that it should be at least one year old, because it will not be sufficiently rotten in a less time. All agree that the dressing for the land should be kept near the surface, well mixed, and as fine as possible. Though we have seen the present year a very superior growth of onions, where green manure from the barn-yard was applied in the spring; but particular pains were taken to subdivide and intermingle it with the soil; and to bush-harrow the land so thoroughly, that very little manure was exposed upon the surface.

Muscle-bed is frequently used upon onion land. A portion of this is deemed by some almost indispensable. We have known the continued use of it for half a dozen years in succession, even without other manures, with a continuation of fair crops; but the general impression is, that it will not do to repeat the application of muscle-bed many years in succession. The effect being to harden the land, and make too much of a crust about the surface. Without question the

effect of the muscle-bed is congenial to the growth of the onion, giving those who live in the vicinity of rivers where it is found, a special advantage over those who are remote from it.

Leached ashes are also a valuable manure in the cultivation of the onion; more so when *leached* than before. All kinds of ashes are advantageously applied on onion land.

Compost manure made of meadow mud and droppings from the cattle, we have known advantageously applied on onion fields; but we have many doubts as to this being the best application of this kind of manure. A more lively and quickly operating manure is better for the onion; one that will give them an early start, and advance them as fast as possible, in the first part of the season. The utmost vigilance and activity are used by our cultivators in getting their land ready, at an early period of the season, for the reception of the seed. It is the first field labour of the spring. The use of compost manure will depend much upon the constituents of the soil with which it is mixed. If the soil be a sandy loam, with a porous subsoil, the compost will do tolerably well; but if it be a black soil, with a clayey subsoil, such as are most of the lands where onions are raised in this vicinity, stable manure, or muscle-bed, or leached ashes, or a mixture of these, will be a better application. The quantity ordinarily applied annually is from four to five good loads to the acre. Whatever is applied should be generously applied. It will be vain to expect full crops of onions, without full manuring. When the manure is collected, it is benefitted much by a free applliplication of *elbow grease* in its preparation. The cultivator of the onion must work early and late, and in good earnest. Nothing short of forcible and persevering labour will answer. No man who is afraid of *soiling his hands or the knees of his trousers*, will do to engage in this business. Close work at the proper time, is the only sure guarantee of a good crop.

3. The raising and planting of the seed.

In relation to the onion, as well as all other vegetables, much care is necessary in the selection of the plants for seed, and the cultivation of the seed. By the application of this care, the character of the article raised may be modified almost at pleasure. Until within a few years the *flat onion*, hollow about the stem, has been preferred. The thinner the handsomer. But it is now understood, that the *round, thick, plump onion*, is preferable in many respects. It is thought to yield better, and weigh heavier. It is found to have a decided preference in the market, commanding *ten per cent.* more in price. By selecting those of most desirable form, which ripen the earliest, and carefully setting them for seed, where they will not be exposed to the impregnation of the baser sorts, the quality has been materially changed and improved. These peculiarities in the onion were first noticed in this vicinity by Mr. Daniel Buxton. He was careful to select in the field before the crop was gathered, such onions as he preferred, and to preserve them for seed.

By so doing, the seed which he raised soon acquired a character superior to any other. Many of those who had been accustomed to raise their own seed in the ordinary way, laid it aside, and purchased seed raised by Mr. Buxton, and found their account in so doing. There are three varieties of the onion raised in this vicinity—the *Silver-skin*, the *Red*, and the *White onion*. The *Silver-skin* is the predominant species, and more cultivated than all others. The *Red* is preferred by some—sells better in some foreign markets, but does not yield so abundantly. The *White onion* yields as well as either of the others, is milder and preferable for immediate use; it will not keep as well, and is not fit for exportation; which is the principal use made of our onions.

The common drill machine is used for the distribution of the seed. This admits of regulation, so as to scatter it more or less thick; and in this there is room for the application of sound judgment. The usual quantity sown is about three pounds to an acre. As a general rule, we should say, one pound of good seed was the proper quantity for a quarter of an acre of land of good quality well prepared. It is desirable to have the seed planted as thick as they will grow fairly, both to secure a full crop, and prevent the onion growing too large. Onions from one to two inches in diameter being preferred to those of a larger size. The skilful cultivator carefully looks after all these incidents relating to his crop.

4. The care necessary to be applied while growing.

Much of the success of the crop depends on this care. At first the plant is extremely tender, and requires to be handled with much caution. Any derangement of the fibres or roots of the young plant, is attended with prejudicial consequences. Much attention is necessary to prevent weeds gaining the ascendancy; and in eradicating the weeds. Want of due care in this is often the cause of failure of a crop. We have known the present season, a highly promising crop to be injured *twenty per cent.* at least, by per-

mitting the weeds to remain unnoticed *one week too long*. This is especially true when there has been a want of due care in preventing the scattering of the seeds of the weeds on the land in the years preceding. Care should be taken, both that no weeds shall ripen their seed upon the land, and that no weed seed shall be found in the manure. In this respect, warm stable manure, muscle-bed, and ashes, have a decided superiority over all other manures. Perhaps there is no plant more liable to be injured by weeds than the onion. The fibres it sends out are very numerous, minute and tender; any fracture of any of these necessarily impairs the perfection of the plant. When the land is in the proper condition, two careful weedings are all that may be necessary. The rest of the stirring of the ground that may be required to promote the growth, can be done with the *onion hoe*. The distance between the rows can be varied according to the quality and condition of the soil. Keeping the ground well stirred, loose, and free of weeds, greatly facilitates the bottoming of the onion. There is no plant that will better reward diligent care in the cultivation. The entire difference between a bountiful crop and no crop at all, often depends on this. The old maxim, "a stitch in time saves nine," applies with great force in raising onions.

5. The blights and injuries to which the crop may be subject.

So far as we have observed, this crop is as certain as any other that is cultivated. We know that onions will not grow without a reasonable proportion of heat and moisture; but we have rarely, if ever known, an entire failure of the crop, where due diligence has been used. There are occasionally blights, the causes of which we have not learned. The more prominent will be noticed.

Sometimes we have seen the plant covered with a small insect or *louse*, that gives the top a white or light coloured aspect, and stops and stints the growth. These make their appearance about the time the bottoming commences. We have heard their appearance charged to the use of muscle-bed; but whether they are limited to land on which muscle-bed has been used, we cannot say. We think not. We think they are natural associates of the plant. The effect of them is to diminish the *quantity*, but not materially injure the *quality* of the vegetable.

The crop is sometimes injured by a *blue mould* that gathers on the tops, occasioned by fogs, or an excess of moisture from frequent and long continued rains.

There is a *worm* or *maggot*, occasionally found upon the onion plant, in the early stages of its growth, causing it to turn *yellow* and die. This insect will be found in the bulb, originating from eggs laid upon the leaves, by a small ash coloured fly, the scientific name of which is said to be *Anthomyia ceparum*,—see Transactions of the N. Y. State Agricultural Society for 1843, page 135. It comes to maturity in less than a month; so that there may be several generations in the course of the season. Their appearance in this vicinity is rare. Pulverized charcoal and fire have been found the most effectual remedies, against the ravages of this class of depredators.

The most annoying enemy of the onion is the *cut worm* or *grub worm*. It probably is the same described by Dr. Harris, in his report on the Insects of Mass. injurious to vegetation, p. 324, there called "*Agrotis devastator*." And in the 1st vol. of Silliman's Journal of Science, "*Phalæna noctua devastator*;" though Dr. Harris does not mention the *onion* as among the plants upon which it feeds; probably considering it like *tobacco*, as *too noisome* to be used by any decently civilized being. They are said "to seek their food in the night, or in cloudy weather, and retire before sunrise into the ground, or beneath stones, or any substance which can shelter them from the rays of the sun; here they remain coiled up during the day, except while devouring their food, which they drag into their places of concealment." The remedy for these worms, suggested by our cultivators, corresponds nearly with that proposed by Mr. Foote, of Berkshire, "*to catch them and pull their teeth out*." This being effectually done to all, their operations will be of a limited character. When this is omitted, we have sometimes known whole fields almost entirely cut down by these rapacious devourers. Tey sweep clean where they go, not suffering even the weeds or any other herbage to flourish. They are more frequently found on *old* ground than on *new*; and particularly where the ground has been covered during the winter with *chickweed or other vegetable substance*, on which the eggs from which they originate may have been deposited. Hence a benefit of clearing the ground of all vegetable matter or other obstructions in the autumn, after the crop is gathered. This clearing also facilitates the early planting in the spring. Autumnal ploughing, as it exposes the soil more fully to the action of the frost, and disarranges all abodes for the winter made by insects, may have a tendency to diminish their number.

6. The time and manner of harvesting.

When the tops begin to wither and fall, then it is usual to start the onions from their bed, and throw them together in rows—say eight or ten growing rows into one. After they have lain thus about one week, they are stirred and turned with a rake, and in about one week more, when the ground is dry, and the weather fair, they are gathered up by cart loads, and taken to the barn. Here they are sorted and cleared of refuse leaves, and then they are in a condition to be *bunched* or *barreled.*

It should be remarked, that a large part of the labour of *weeding*, *gathering* and *sorting* the onion, can be performed by children from *ten* to *sixteen* years of age. Boys of this age, when properly instructed, will do about as much as men. They are more nimble, and can come at the work with greater facility. The sorting of the onion is frequently done by girls as well as boys. From *three* to *five* dollars a week, at one cent a basket, are usually earned by them during the period of harvesting—which includes the months of September and October. After the crop is taken off, if the surface is sloping, it is useful to plough furrows about one rod apart, to keep the surface from washing. Unless this is done, all the herbage being gone, much of the soil will be likely to be misplaced, by the melting of snows and running of water in the spring.

The inquiry arises, whether the growth of the onion is limited to soils of particular character, or whether it can be cultivated upon any good soil, with proper attention. We know that there is a popular impression, that there are but few places in which the onion can be cultivated advantageously. So far as our own observation has extended, this impression is in a great measure erroneous. Like every other plant, the onion grows best on very good soils, in very good condition. But we have known very fair crops, on plain, light land, after the same was well saturated with *manure*, *muscle-bed* or *ashes*. A good substratum must be laid before a good crop can be expected; and this being done, a crop may be expected on almost any soil, that will support other vegetables.

If we were asked, what course is best to be pursued with land, on which onions have never been raised, to bring it into a condition for a successful cultivation of the crop, we should say—begin by ploughing to the full depth of the nutritive soil, and during the first and second years, thoroughly subdue and mellow the soil by the cultivation of crops of corn and carrots, with liberal dressings of manure; then thoroughly incorporate with the soil a dressing of strong manure and muscle-bed, just covering this dressing; then harrow the surface thoroughly, and clear it of all roots, weeds, or other obstructions; then apply a coating of lively, well rotted manure to the surface, and bush harrow it; and then it will be in a condition to receive the seed, which is to be inserted as as soon as the opening of the spring will admit of its being done.

We are aware that we make the raising of the onion dependant upon severe labour and vigilant attention. We know that it cannot be successfully done without these. But it is not labour lost. No cultivation, within our observation, better repays for the labour and incidental expenses. We have known, the present season, acres that have yielded their owners a net income of more than *two hundred dollars;* and we know that a man with two boys can well attend to half a dozen acres of such cultivation. Surely, when as at present, there is no limit to the demand for the article, and a ready cash market, those who have *acres* and are willing to labour, need not be in want of a fair compensation for their labour.

As samples of the present year's produce in the town of Danvers, we state the following that have come under our notice:

Names.	*Acres.*	*Produce.*
John Peaslee,	3	1,980 bushels.
Daniel Osborn & Son,	1 1-5	870 "
James P. King,	1 1-3	660 "
Aaron C. Proctor,	1 1-4	600 "
E. & D. Buxton,	6 1-2	2,750 "
Henry Bushby,	4	2,000 "
Joseph Bushby,	3	1,500 "

Yielding an average of more than 500 bushels to the acre.—*Cultivator.*

American Institute—Drainage.

February 15th, 1848.

R. L. Pell, of Pellham in the Chair.

Henry Meigs, Secretary.

Mr. Pell said that drainage, one of the subjects selected for discussion at the present meeting of the Farmers' Club, is a subject of vast importance to the agriculturists; whose success in growing crops, entirely depends upon the removal of superfluous water from lands naturally tenacious, and retaining constant moisture; which in nine cases out of ten materially injures cereal crops, and not unfrequently renders vast tracts of land entirely useless for agricultural purposes, which in many instances might be reclaimed at a small expense comparatively speaking. Often two or three land springs destroy acres of valuable land, by rising over the surface, and descending through alternating stratas of clay, gravel or sand, until they reach a hard bottom, where they accumulate and form re-

servoirs—which ooze through the superincumbent surface, and keep it always wet. If there is a descent, this water may be readily got rid of by boring, by under drain, or open drain. If surrounded by high ground, select the lowest spring, and dig a well; the water will then follow the vein and thus thoroughly drain the field. Should there be a sufficient descent, open or close drains may be made, conveying the water from the various springs to the lowest part of the field, where a pond may be formed, for the purposes of watering cattle, supplying ice, or even fish! The earth excavated, if clay, will form a valuable manure for sandy land—and vice versa, if sand, will render porous and fit for cultivation a clay soil. It not unfrequently happens that water is retained near the surface of a field, by a clay strata of inconsiderable thickness, thus rendering the soil unfertile; this difficulty may be overcome at a small expense, by perforating the clay with a subsoil plough; the water will sink into the gravel or sandy soil beneath, and escape. In many fields you often find alternate portions wet, and dry—upon examination it will be found that the wet portions are clay; and the dry, sand or gravel. In this case your field may be reclaimed at once, by opening a drain from the wet to the dry land, which will immediately absorb the moisture.

A drain should on no account be made directly down a rapid descent; lest its efficiency might be destroyed by the impetuosity of the stream, and consequent collection of water at the bottom, inducing an overflow, and occasioning injury to the adjoining field; let it descend the field diagonally, and the water will naturally percolate slowly without forming obstructions.

If the slope is gradual, by all means run your drains in a straight line directly down it, in parallel lines; as it stands to reason where the situation admits of it, that a straight line carries the water more readily than a diagonal one. Main springs sometimes render a field unfit for agricultural purposes. I have known fields that have been perfectly useless to their owners for years from this cause, which might have been remedied in a few hours by simply opening the channel of the spring; lands that have been long immersed in water, may by proper drainage be made to yield very large crops of grass, or grain: for the reason that water constantly absorbs gaseous matters from the air, and carries them with it wherever it goes in a solution—it is finally deposited by an arrangement of nature in the earth—and is constantly renewed by every succeeding overflow, until the land becomes rich in these impurities of the water, all of which are in a more or less degree indispensable to the growth of plants, being of organic origin, and containing not only decayed vegetable matter, but frequently animal. It is only necessary therefore to get rid of the superfluous water by judicious drainage, and all these matters become at once capable of ministering nourishment to your cultivated plants. And land which in its undrained state was of no use to you, becomes of inestimable value. While saturated with water it is impossible for the earth to obey the laws nature, and radiate heat—as all bodies of on the face of the earth should; all warm bodies throw out heat to cold bodies, as nature is forever striving for an equilibrium of heat. She is bountiful and yet provident in all her works; she ungrudgingly dispenses her favors to man, yet never wastes; her sun shines and throws light upon all alike; still science can assist nature, and proper drainage is calculated to benefit not only wet, but in many cases even dry soil may be benefited by drains. I once had a small piece of land which would yield me no return for my labor. I ran several drains through it, and ploughed it deep and thoroughly; the second year after it produced a heavy crop of grain. The conclusion I came to was, that the soil contained substances injurious to vegetation; which were rendered soluble by the rain water falling upon the ground, and carried off through the drains.

Undrained lands are called cold, and justly so, for the reason that they never derive proper benefit from the sun's rays; they give off incessantly a very large quantity of vapor, and with this vapor nearly all the heat they may contain. It is not necessary to take my word for this fact, as you may by the same experiment I tried, satisfy yourselves. In the summer at mid-day place a thermometer in a dry field, and it will probably rise to 103 degrees—then in a moist undrained field, and it will fall perhaps below 80 degrees. Such was the case in my experiment.

Immediately after the water is removed from the land, the air at once penetrates and possesses itself of all the vacant spaces; the consequence is that the roots of growing plants descend likewise, and find a virgin soil, of great depth; accumulated by continued washing of the rain perhaps for centuries. It will strike you as a natural consequence, that the deeper you make your drains, the greater the depth of available soil will be afforded for the purposes of vegetable growth. Wheat and clover will extend their roots four feet in depth, if the soil will admit of it. Practical men in Europe have found that the effects of draining have

increased the products of their farms sufficient to pay for the most expensive system of drainage, in three years. There is a private gentleman in Great Britain, who has made over 350 miles of drains on a single farm of 1000 acres land. Before it was drained, he rented it for two dollars per acre; and afterwards for eight dollars. As soon as the land becomes dry, the agriculturist had an opportunity afforded him of displaying his exertions to advantage. Bones, ashes, nitrate of soda, lime, and other artificial manures, which on his wet soil exhibited no fertilizing virtue, now yield him adequate remuneration for all his labor and expenditure. The man who drains and improves a wet piece of bog land, should be looked upon by all his neighbors as a public benefactor; for the reason that mists, mildews, miasma, &c., arise from such land, and injure all the crops in its immediate vicinity—and not only that, but they do far greater injury to the surrounding population, by causing intermittant, bilious, typhus fever, fever and ague, &c. By drainage, then, the climate of the locality is entirely changed in reference to the general health of the inhabitants, and the growth of plants. "Dr. Wilson, in the English Quarterly Journal of Agriculture, vol. 12, page 317, has shown that fever and ague, which formed nearly one half of all the diseases of the population during the former ten years, had almost wholly disappeared during the latter ten, in consequence of the general extension of an efficient drainage throughout that part of the country, (district of Kelso) while, at the same time, the fatality of disease, or the comparative number of deaths from every 100 cases of serious ailment, has diminished in the proportion of four to two. Such beneficial results, though not immediately sought for by the practical farmer, yet are the inevitable result of his successful exertion. Apart therefore, from mere considerations of pecuniary profit, a desire to promote the general comfort and happiness of the entire inhabitants of a district, may fairly influence the possessors of land to forward this method of ameliorating the soil; while the whole people on the other hand, of whatever class, ought gratefully to acknowledge the value of those improvements which at once render their homes more salubrious, and their fields more fruitful."

Drainage, then, in the first place changes the soil, improves the climate, and adds to the health of the surrounding people.

In the second place—it deepens the soil, dissipates the water, and cleanses the subsoil of unprofitable ingredients. And in their place renders the land capable of producing all the cerealia by the free admission of atmospheric air.

Three years since, I made seven and a half miles of stone under drains on a piece of bog land. The ditches were dug to the depth of three feet, and were three feet wide at the bottom. A wall was carefully laid on each side, 12 inches wide and 12 inches high, leaving a 12 inch opening, over which flat stones were placed—and the interstices filled up with small stones; the whole were then covered with dirt; shortly after the field was plowed, harrowed, and seeded with rye, clover, and red top. The crop of rye was a fine one, grain weighed 60½ lbs. to the bushel, and the grass made capital pasture after the rye was harvested. This land had never been cultivated before; and was always avoided by cattle, on account of the numerous quicksand holes contained in it. I brought all the drains to a point, and there formed a chain of two ponds 800 feet in length, and 14 feet deep—also a circular pond of less dimensions, connected with them. The muck taken from the ponds amply remunerated me for all the expense incurred; they are now stocked with European Carp, Pickerel, Shad and fish from the great lakes.

I would not have the gentlemen who hear me, understand that to drain a piece of ground effectually, it is only necessary to construct a drain with a sufficient descent to carry off the water it contains, but that it is indispensable they should know the structure of the field's upper crust, its capacity of permitting water to course through it, the varieties of strata of which it is composed, its porosity, &c. Some fields are not capable of allowing water to pass them at all, on account of oblique strata running through them, and forcing the water to the surface; such fields may be considered unfit for agricultural purposes, and any expense laid out upon them, by the proprietor, for the purpose of draining, would be a dead loss. Before this system is commenced I would advise the farmer to examine his soil, and subsoil; find out of what materials they are composed,—their depth, degrees of inclination from the horizontal, &c. The subsoil is most generally entirely different from the surface soil; the surface may be composed of clay, and the subsoil of sand, or gravel, in which case deep subsoil ploughing will answer all the purposes of a drain; most effectually breaking up the clay surface, and thus enabling the sand or gravel to absorb all the excessive moisture. I have heard farmers say they derive no benefit from draining, although in their estimation their drains were perfect,

having been made at great cost, and of proper materials, with sufficient descent, &c. Upon examination I found they had not subsoiled their land, the consequence was the clay subsoil being retentive, held the water in almost a stagnant state, which was absolutely poisonous to all vegetation above it. The only benefit the farmer derived from his drains was an improvement in the soil directly contiguous to them. Whereas it is indispensably necessary that the whole field drained should be subsoiled as deep as possible, the hard pan must be broken up, when the water will readily find its way to the drain, and through it to the level sought by the cultivator; you must not therefore consider the work accomplished until your land is perfectly tilled, and the air admitted to all the pores recently filled with water. Most farmers not bearing this fact in mind, construct their drains so shallow, that it is impossible to subsoil; and consequently they have deprived themselves of all the advantages to be attained by its adoption, and their drains are comparatively speaking almost useless, draining and deep ploughing go hand in hand together, and it is by combining their effects, — that the greatest improvement to the soil is accomplished.

Mr. Pell said that irrigation, is another subject, before the club this morning for discussion; and although of vast importance, is not as necessary for us in my estimation, as drainage; for the reason that our climate is blessed throughout the growing season with an abundance of water, except in a few isolated instances. It is the art of watering lands in an artificial manner by means of channels, with a view of increasing their productiveness. In Eastern countries the heat of the climate is such, that without flooding, lands which now yield most abundantly, would be completely sterile. The simile made use of by Isaiah to indicate desolation, is "a garden that hath no water." Cato 150 years before the birth of our Saviour requested the Italian agriculturists to "make water meadows if they had water." The principal rivers in northern Italy, the Tagliamento, Po, and Adige, are used for the purpose of irrigation, and all the country contiguous to them from Turin to Venice, is capable of being overflowed; they find it necessary to irrigate not only for grass, but for corn and vines. The waters of all these rivers belong to the States through which they pass, and no man can use them without paying the state a price regulated by the quantity of water required. Lands capable of being irrigated in northern Italy, rent nearly for one half more than lands which are not. In all the hot countries in Asia, and in all tropical climates irrigation is carried to a great extent as the most effectual mode of producing fertility. It is a favorite system of agriculture in Hindostan, Arabia and Persia, as well as in the empire of China. I noticed a statement made in the Journal of Commerce yesterday, by a gentleman who had resided many years, 1400 miles up the River Ganges in India, that millions of people had died of famine, rain not having fallen for six months, and that the British government were now constructing a canal from the mountains in which the Ganges rises, 700 miles in length, at a cost of $50,000,000, for the purposes of irrigation. I was shown lands in the vicinity of the city of Edinburgh, Scotland, belonging to Earl Moray, that had been irrigated by the street water from the city, and thus made superior to any other land in Great Britain, yielding six crops of grass in a single year, which is sold for the purpose of being fed to milch cows, for £29 sterling per acre, and has been sold as high when grass was scarce as £55 per acre. Forty-two acres of poor sandy soil near the city was irrigated at an expense of £900, and in 1833 when I was there, rented for £19 per acre, about $84,36.

There are on Long Island within a few miles of this city, large tracts of sandy soil, now worth perhaps $5 per acre, which I am confident might be made worth $150 by a proper and judicious mode of irrigation. Adjoining many of these lands there are extensive ponds, which by the use of proper steam machinery, might be made to irrigate them. The first expense in many instances, would be great, but the profits would be far greater. I would respectfully advise some of the Long Island millionaires to try the experiment on a small scale. It only requires the success of a single individual, to induce every inhabitant to follow his example, and Long Island would soon become the garden of New York.

In Switzerland the mountain torrents as they descend in the fall are conducted over the vallies, which are flooded, and in many instances remain so during the winter; one winter's flooding is considered of more value to the grass, than 29 loads of the best rotted stable manure. Such being the case, how inconceivably valuable is the water, which daily finds its way into the river, and thence into the ocean, from this great city of New York, how effectual would be the improvement of our impoverished lands—if their valuable substances could find their way to them, instead of the ocean. By what our City Fathers call their improved plan of drainage, all the rich excrementitious matters now find their way to the ocean likewise. These substances if they could be

saved, would be worth countless millions to the agricultural interest of the State.

I will venture to say that more than one thousand tons of most valuable fertilizing matter, finds its way daily to the rivers from the city of New York; sufficient to enrich 30,000 acres of the poorest land annually; in such a manner as to render it capable of producing 130 bushels of shelled corn to the acre; instead of its present yield 25 bushels. It would pay the Long Island, and Jersey Agriculturists, to construct at the mouth of the leading sewers, water tight chambers, to collect the enriched waters of the city: with which to irrigate their worn out and famished lands. These waters contain in solution every known requisite for the growth of plants, they contain calcium, lime, carbonate of lime, sulphate of lime, nitrates, sulphates, phosphates, alumina, silica, magnesia, oxides, organic and inorganic substances. In fact every matter requisite to agriculture is contained in them, refuse substances from the apothecary, chemist and soap boiler find their way into them, and they are beyond the shadow of a doubt of inestimable value for the purposes of irrigation. If Earl Moray obtained, as I before stated £55 or $244 per acre in a single year for his grass, grown on poor sandy soil, in the neighbourhood of Edinburgh; merely by the use of street water; what is there to prevent the Long Island farmer from obtaining like results. Let me entreat you gentlemen to collect by subscription a few thousand dollars and try the experiment? You will then leave your heirs a valuable inheritance. Pursue your present mode of agriculture, and you will impoverish yourselves, and drive your children to the western wilds.—*Farmer and Mechanic.*

For the Farmers' Cabinet.

The effect of the early sowing of Wheat on the increase of the Hessian Fly.

Of late years it has been the practice in this neighbourhood, to sow wheat earlier in the season than had previously been customary for a long time. It is also observable, that in a few years after this practice became general, the ravages of the Hessian fly were much increased. It is then an interesting inquiry, whether the latter fact is a consequence of the former: it is also important to know, if possible, whether a continuation of the practice will occasion a continuation of the ravages of this insect.

This is an intricate subject—enveloped in much obscurity—but if we can obtain any light upon it, it will probably be derived from an examination of the habits of the insect before us. We may note then that the fly is known to make its appearance in the growing wheat early in the spring, in the form of a small larva or maggot. It appears to feed upon the juices of the plant for some time, and then it assumes a brown covering, in which it lies in a state of inactivity for a length of time which I have not carefully observed—taking no food, and apparently doing no other damage to the plant than that which is produced by its mere pressure upon the growing stalk. In the early part of June—sooner or later, according to the season—it comes forth in its finished stage of being, flies abroad and provides for the perpetuity of its race.

This brood we may call the first generation of the insect. The second generation may be observed soon after the disappearance of the first, in wheat that is late in ripening; in barley, rye, and probably in some other gramineous plants, though of the latter fact I have no clear evidence—nothing but probable conjecture. I have, however, seen the fly in abundance at this season, in barley and in wheat; occupying the axil of the upper leaf, and assuming the brown or flaxseed appearance about the time the grain is ripening. Of course in this state it is carried into the barn or stack, and there probably it goes through its final metamorphosis. This is the second generation.

The third may be seen in the autumn, in early sown wheat, assuming the brown covering before winter, and lying in that state till the warmth of spring rouses it from its torpidity. It then obtains wings, bursts open its shell, flies abroad to enjoy the balmy airs of heaven and the rich scenery of earth; and after providing for the succession of another generation, speedily goes the way of all flesh. There are, therefore, three generations of this pest of the farmer in each and every year; one in the spring, another in midsummer, and a third in the autumn and winter. Such is the outline of the history of this insect, which I have deduced from observation, and I feel satisfied that in the main it is correct, though there is much wanting to fill up the picture.

Now it is manifest that whatever favours the multiplication of the insect, must tend to increase its ravages; and it is not less obvious that the early sowing of wheat, by furnishing it with increased facilities for the propagation of its race, will have this effect. It is rational therefore to conclude, that the great multiplication of the fly observable in this neighbourhood within the last few years, is mainly owing to the general practice of early sowing which had preceded that event. Nor does the fact that late sown wheat is as

liable to be injured by the fly as that which is sown early, militate against this conclusion; for the principal damage to the wheat crop is mostly done by the spring brood, and if the fly is in the neighbourhood it will be as likely to lay its eggs in that which was sown late as in any other. Nay, it is not improbable that the younger plants furnished by the late sowing, may be preferred by it; and that to such it will be more destructive than to those which are older and more vigorous. Thus he who by sowing early, raises a plentiful winter brood of these insects, cherishes an enemy which is quite as likely to destroy his neighbour's crop as his own. There is therefore no security to be found in late sowing when practiced by a few, while the general mass sow early enough to allow of the egg to be deposited in the young plants before the season of the fly is past. If anything is to be gained by the practice in the way of preventing the multiplication of the fly, it must be universally, or at least very generally adopted.

With regard to the other branch of the proposed enquiry,—whether a continuation of the practice of early sowing will occasion the continued destruction of the wheat crop —there is a curious fact connected with the life of the Hessian fly, which it is very necessary to take note of.

This destructive pest has a deadly enemy in a parasite insect of nearly its own size, by which myriads of its kind are every year destroyed. This enemy attacks the fly about the time when it assumes the brown covering, or perhaps somewhat earlier. It deposites its egg in, or on the body of the fly, where it hatches, and the young larva proceeds to feed itself thereon till it eats it all up, and occupying the shell which the fly had provided for itself, it goes through its appointed changes, and in due time comes forth a winged insect, prepared to seek out a place for its progeny similar to that in which it was nurtured. These insects may be seen coming forth from a portion of the shells which the Hessian flies had prepared for themselves, about two or three weeks after the time when the Hessian fly makes it appearance. They are assiduous in seeking a suitable place to deposite their eggs, of which on one occasion I had a striking illustration. I had gathered some stalks of grain containing the fly at the time of harvest, and put them in a glass vessel in an open room used for drying and preserving seeds. I intended to cover them up and watch their developement, but being then much engaged, I left the vessel uncovered. On returning to it a few days after, I observed a number of those enemies of the Hessian fly—with whose appearance I had previously been somewhat familiar—gathered about and on the straw in which the flies were enveloped, as if they were attracted there by something peculiar. Indeed they were evidently seeking a place to deposite their eggs.

Through the agency of this parasite a large proportion of the Hessian flies are every year destroyed, and it is highly probable that but for this destruction we should be utterly unable to raise wheat to profit.

Now it is manifest that the destruction of the Hessian fly will be increased as the number of its enemies is multiplied; and it is evident that these will multiply more or less according to the means of their subsistence. Whenever the Hessian fly is abundant, it furnishes the means for the multiplication of its enemies, and this increase of the parasite insect is only checked when the destruction of the fly limits its supply of food. Thus when any circumstances give peculiar encouragement to the increase of the Hessian fly, its power of increase is so great it soon multiplies to the extent of its means of obtaining suitable situations for its brood, or at least it makes rapid strides towards this condition. Its enemy however is not much its inferior in such a race; but it cannot start until the other by its abundance has furnished it with the means. It then continues to multiply so long as these means are furnished, and it continues to hunt down the Hessian fly with unwearied assiduity, till a scarcity of its appropriate food arrests its further progress and thins its ranks. Its diminished numbers cease to be formidable to the Hessian fly, and allow it to take advantage of the first favourable chance to start forward in another race—again it is pursued, overtaken, and hunted down by its unwearied adversary, and again that adversary partly perishes for the want of food—and thus a constant succession of floods and ebbs in the tide of being is naturally produced, in this department of the insect world.

In accordance with these principles, we find that when the Hessian fly first made its appearance in our country, it was for some years much more destructive than it has been at any time since; and that the visitations of this plague since that time, have been of a more or less periodical character.

We may conclude, therefore, that the practice of sowing wheat early in the season, has for some years past given an impetus in this district to the increase of the Hessian fly, which has enabled it to outstrip the pursuit of its destroyer, and to devastate our wheat fields; but we may rest assured that this state of things will not continue many years. The abundance of the Hessian

fly will furnish the means of multiplying this parasite, so as to give a material check to its own ravages. They cannot, however, by such means be entirely prevented, and the fly will doubtless continue to infest our wheat fields as heretofore; sometimes more, sometimes less, but always in some degree. Whether the practice of early sowing will—taking many years together—cause an average increase of the devastations of the fly, is a question which I presume is yet to be decided by observation and experiment. My own opinion is, that it will do so; and that our true policy is to return to the practice of late sowing, so as to obstruct the increase of the fly. But further observations are wanting before much confidence can be placed in any judgment we may form in the case; the subject is enveloped in much obscurity, and principles may be in operation in relation to it which we do not even suspect.

W. Jackson.

Harmony Grove, Chester co., Pa.,
March 8th, 1848.

Horticultural Premiums.

The Pennsylvania Horticultural Society will hold its stated meeting in the Museum building on Ninth and George streets, on the 18th of next month, at 8 o'clock, P. M. The following premiums are offered.

Pelargoniums.—For the best, ten named varieties, to be exhibited in pots, $5.

For the second best do. do. do. $3.

For the third best do. do. do. $2.

Roses.—For the best ten Everblooming Roses, named varieties in pots, including Bengal, Tea, and Noisettes, $4.

For the second best do. do. do. do. $3.

For the third best do. do. do. do. $2.

Tulips.—For the best, single, twelve named varieties, $3.

For the second best do. do. $2.

For the third best do. do. $1.

Hyacinths.—For the best, six named varieties to be exhibited, $2.

For the second best do. do. do. $1.

Pansies.—For the best, six varieties do. $2.

For the second best, do. do. $1.

Auriculas.—For the best, four varieties do. $2.

Polyanthus.—For the best, six do. do. $2.

Cucumbers.—For the best, two in number, do. $2.

For the second best do. do. $1.

Cauliflowers.—For the best, three heads to be exhibited, $3.

For the second best do. do. $2.

Sea Kale.—For the best, six plants do. $2.

For the second best do. do. $1.

Rhubarb.—For the best, six stalks do. $1.

Asparagus.—For the best, twenty-four stalks, do. $2.

For the second best do. do. $1.

For the Farmers' Cabinet.

To Preserve Portico Floors.

In reply to "A Farmer," in your last number, I will give my experience on the subject, with some theory added thereto.

Dry pine planed and grooved, the boards about six inches wide. A coat of paint upon this, a sufficient quantity of sharp clean screened sand; when the two firmly unite and dry, another coat, and a third.

My porticos have been in use three years; there is neither the appearance of wear nor leak. There is nothing I could have done to the floor that would have met my approbation, in preference. Stone steps are objectionable, they are very costly and unyielding to the tread, and not agreeable. Here we have an agreeable substitute. The foundation steps is granite, and as the whole of wood steps and floor was painted light lead colour, it is almost impossible to see the difference, they are so much alike in appearance, rendered more so, by being accidentally stained with leaves, &c.

I am of the opinion that the dregs of linseed oil will be equally as good as pure, for the first coat. Thickness is desirable to lay the sand upon. I also think that the boards should be entirely free from knots, and *not* planed. It is indispensable to have the bottom step stone for all porticos. Some plan should be adopted to prevent rain falling on the painted sand till dry,—if it runs about, it cannot be so durable, nor look well.

The thick oil or paint put on a common board as above described, will give you all the knowledge in a few days for a fip. I should be glad to learn the success of the Chester county farmer in the premises.

E. Lewis.

Bloomsbury, near Havre de Grace.
Feb. 26th, 1848.

P. S. Since writing the foregoing, I have examined my floor more minutely, and think the width of the plank not material; but should be well seasoned, and the steps should be one and a half inch, or two inches may not be too thick; one inch is not strong enough; nor is the grooving essential, but must be grooved or slatted, to prevent the sand and oil passing through. E. L.

Grafting Grape Vines. By Alexander Marshall, Esq., West Chester, Pa.

The cultivation of the grape is becoming very extensive as an article for the market, as well as for consumption by those who grow them: and one which cannot be too highly prized as a delicious and wholesome fruit. Almost every one loves to eat a plate full of good grapes, but very few know how to cultivate them, and fewer still know what varieties to select as best suited to the soil and climate of their particular location. So that, after having reared a few vines to a proper bearing age, they are disappointed in the crop by having been unfortunate in their selection. They thus become disheartened, and suffer the vines on which they have bestowed so much attention, and watched with so much solicitude, to perish for want of the very treatment that would make them productive of good fruit. To such I would say, Cheer up; those vines are very valuable; their variety can soon be changed by the process of GRAFTING.

If the reader will have a little patience, I will give him my experience on this subject. Some years ago, I planted a vineyard, and, to make the variety as extensive as possible, having a strong partiality for native plants and fruits, selected cuttings from many wild varieties on the neighbouring hills and in the surrounding valleys. After bestowing a great deal of labour and attention on them for several years, I found that they would not meet my expectations as fruit-bearing vines, and concluded to try the experiment of grafting them. Having prepared myself with scions for the purpose, I commenced one morning, about the last of March, by removing the soil from the vine to the depth of five or six inches; sawed off the vine about two inches below the surface; smoothed the end of the stump with a sharp knife—split the stump in the centre with a chisel—cut the butt end of the graft in the shape of a wedge, so that the first bud would come on, or immediately above, the shoulder of the stump, leaving but two buds on the graft, one of which would come above the surface of the ground. The stumps being from an inch to an inch and a quarter in diameter, I put two grafts in each stump, one in each side, with the outside bark to coincide with that of the stump—covered the top and cleft sides of the stump with grafting wax (made of beeswax, rosin and tallow) so as to prevent the bleeding of the sap—replaced the soil carefully around and over the stump, covering the first bud and leaving one only above the surface, and marked the place with a stake to prevent accident. I used no matting or tying of any kind, the stump being strong enough to hold the grafts.

I thus grafted one hundred and twenty vines the same day. It so happened that when the grafts were set in the last twenty stumps, and the wax adjusted, ready for replacing the soil, I was called from the field for some purpose, and the soil was not replaced about the stumps for two or three days. Now mark the difference occasioned by so slight an accident. Of the first hundred, not more than four or five missed growing—of the last twenty, full one half missed. The grafts that grew, did well, and the next year produced a crop of fine *Catawba* Grapes.

I have since grafted grape vines the same way, and with equal success, always being careful to replace the soil immediately.—*Hovey's Magazine of Horticulture.*

Sagacity of the Ass.

Not a few pens, and some of great ability, have taken up the defence of this ill-used animal. "The ass," said the prophet of old, "knoweth his master's crib;" but the ass of our times is not so fortunate, for, as a pleasant writer observes, the poor beast is utterly unacquainted with the nature of a rack, and knoweth not even the existence of a manger. He is a houseless vagrant over commons and along lane sides; he is a beast among gipsies, and a gipsy among beasts. He is unfed, untended, unpitied, he is hated, kicked, spurned, thumped, lashed, tormented, troubled, and thrashed in every possible and devisable fashion—and for why? Your "most exquisite reason," good public? Alas! he is—an ass.

In Britain, the nature and disposition of the ass is quite destroyed through carelessness and cruelty—

> "The ass grows dull by stripes, the constant blow
> Beats off his briskness, and he moves but slow."

But among the peasantry of Spain the ass is a petted favourite, almost an inmate of the household. The children welcome him home, and the wife feeds him from her hands. Under this kind treatment his intellect expands, and what we denounce as the most stupid of animals actually becomes sagacious, following his master, and coming and going at his bidding. Mrs. Child relates, that a Spanish peasant and his ass had daily, for many years, carried milk round to several customers in Madrid, till at length the peasant became very ill, and had no one to send to market. At the suggestion of his wife, the panniers were filled with canisters of milk; an inscription, written by the priest,

requested customers to measure their own milk, and return the vessels; and the ass went off with his load. He returned in due time with empty canisters, and thus he continued to go to and fro for several days. In Madrid, the house-bells usually pull downwards, and the ass stopped before the door of every customer, and, after waiting a reasonable time, pulled the bell with his mouth. —*Blackwood's Magazine.*

Philosophy of Farming.

Here is the secret of good farming. You cannot take from the land more than you restore to it, in some shape or other, without ruining it, and so destroying your capital. Different soils may require different modes of treatment and cropping, but in every variety of soil these are the golden rules to attend to: Drain until you find that the water that falls from heaven does not stagnate in the soil but runs through it and off it freely. Turn up and till the land until your foot sinks into a loose, powdery loam, that the sun and air readily pass through. Let no weed occupy the place where a useful plant could possibly grow. Collect every particle of manure that you can, whether liquid or solid. Let nothing on the farm go to waste. Put in your crops in that course which experience has shown to lead to success in their growth, and to an enrichment and not impoverishment of the land. Give every plant room to spread its roots in the soil, and its leaves in the air.—*Agriculturist.*

Value of old Rope.—Among the numerous worn out, and often considered worthless, materials, which the ingenuity of man has discovered means of remanufacturing, and rendering of equal value to its original substances, are old tarred ropes which have long been in use at coal pits. Our readers will be surprised when we inform them that out of this dirty and apparently unbleachable substance, is produced a tissue paper of the most beautiful fabric, evenness of surface, and delicacy of colour, a ream of which, with wrapper and string, weighs 2 1-2 lbs. It is principally used in the potteries for transferring the various patterns to the earthenware, and is found superior to any other substance yet known for that purpose; it is so tenacious that a sheet of it, if twisted by hand in the form of a rope, will support upwards of one cwt. Truly we live in an age of invention.—*Farmer and Mechanic.*

Remarkable Instance of the Vegetation of Maize, or Indian Corn.—In the year 1754, a member of the Bath Society, England, obtained while in Strasburg, an ear of Indian corn, which was preserved with the husks on until the 28th of February, 1788, when six grains were taken from it, soaked in water fifty-four hours, and planted in earthen pots, in a hothouse. In about twenty days they began to appear, and four out of the six grew to about the height of three feet, and two produced ears completely formed. The pots were taken out of the hothouse the latter part of June, and the ears were gathered the beginning of October. Six other grains taken from the same ear were planted in a garden without soaking, but showed no signs of vegetation.—*Exchange paper.*

Pickled Eggs.—In some parts of England, pickled eggs constitute a very prominent feature in the farm-house store-rooms. The mode in which the good dames pickle them is simply thus: at the season of the year when their stock of eggs is plentiful, they boil some few dozens in a capacious saucepan until they become quite hard. They then, after removing the shells, lay them carefully in large mouthed jars, and pour over them scalding vinegar, well seasoned with whole peppers, allspice, a few pieces of ginger, and a few cloves of garlic. When cold, they are bunged down close, and in a month are fit for use. Where eggs are plentiful the above pickle is by no means expensive, and is a relishing accompaniment to cold meat.

THE FARMERS' CABINET,

AND

AMERICAN HERD-BOOK.

Philadelphia, Third Month, 1848.

The Editor of the Farmer's Cabinet will relinquish its publication at the close of the current volume in the seventh month next. He will dispose of the concern upon terms that may be advantageous to any one who may incline to continue it.

An advertisement in the present number of the Cabinet, will show that John Wilkinson, of the Duchess Agricultural Institute of Duchess county, New York, is about to remove his establishment to Mount Airy, the well known residence of James Gowen, one of our most enterprising and successful farmers. The high character of those to whom the advertiser refers, leaves no room to doubt his thorough qualification for the responsible duties he is about to assume in our vicinity. We presume further, that our friend J. G.

would be exceedingly tenacious of his own high reputation, and therefore unlikely to risk the undertaking with one in whom he did not place the most implicit eliance.

We sincerely hope that this enterprise may be as successful in every particular, as its objects are important to the great farming interests of the country.

The *American Journal of Agriculture and Science* has passed from the hands of Dr. Emmons and A. Osborn, by whom it has for some time been ably conducted, into those of our friend C. N. Bement, well known to the readers of the agricultural journals of the day, as an experienced and valuable writer for them. We trust its usefulness may not be diminished by the change; and hope that the *market*, spoken of in the introductory remarks, may be a *profitable* one. It is still published monthly at Albany, N. Y., at two dollars a year.

The estimate of the present population of the United States, and of the crops for the year 1847, compiled from the Report lately laid before Congress by the Commissioner of Patents, on page 248, will be found a highly interesting paper. It is marked throughout with evidences of the uninterrupted increase of numbers, as well as of the means of subsistence.

The advertisement of Paschall Morris and Ezra Stokes, will be found on this page. To those who would supply themselves with good and genuine trees, every facility is, we think, afforded by them. Orders will be received by the editor, at this office.

We do not recollect the recent introduction of any one convenience to the appliances of the farm house, that is at all comparable to that which attends the use of the Hydraulic Ram. Many farmers in this vicinity, not only in this State, but in New Jersey also, and Delaware, have availed themselves of it, and they find it to work well, and to save much labour. There may be many situations where the water may be brought by the force of its own gravity, to the house and barn, without the services of the Ram. The editor was a few weeks ago partaking of the open hospitality of his friend William R. Tatum, whose farm lies on the north side of Woodbury creek, half a mile from Woodbury, the county town of Gloucester, in New Jersey. We were particularly pleased with the manner in which he had secured to his family and barn-yard stock, a plentiful supply of the all-important beverage, at all seasons, without the labour of pumping. About 500 yards from his house, on the south side of the creek, on his neighbour's land, he found a spring about ten feet higher than his kitchen floor. The water of this spring he has made completely tributary to his wants and family comforts. He brings it through a leaden pipe of ½ or ¾ inch bore, under the bed of the creek, and sufficiently below the surface of the ground to be out of danger from the frost, to a reservoir under his shed; from which, when the water reaches a certain height, it passes through another leaden pipe down to the trough in his cow-yard: this is always kept full, and the superfluous water is carried thence into his sheep-yard. The operation appears complete, and has been effected at an expense of about $125. We have been induced to make these remarks in consequence of the letter from W. Bacon, on page 245.

Fruit and other Trees.

The subscribers offer for sale at their Nurseries, Westchester, an extensive assortment of Fruit, Ornamental and Evergreen Trees of fine size, and which are warranted true to their name. Their list of Apple trees comprises about 130 select kinds of thrifty growth, and have been entirely free from the attacks of the borer, which have been so fatal in some sections. Trees packed so as to carry any distance, and delivered in Philadelphia if desired. Orders may be left with Josiah Tatum, from whom catalogues can be obtained. Orders by mail will receive prompt attention.

MORRIS & STOKES,
Westchester, Chester Co., Pa.

Third mo. 15, 1848.—2t.

COAL.

The subscriber has made an arrangement for a constant supply of superior Lehigh and Schuylkill Coal—carefully prepared for family use, which he will furnish *at the usual cash prices*, on application at the office of the Farmers' Cabinet, where samples of the different kinds and sizes may be seen.

JOSIAH TATUM.

Philadelphia, Seventh month 15th, 1847.

GUANO.

Peruvian & African Guano, in bags & bbls.

ALSO, PREPARED GUANO.

This article has been in use during the last year, and from the effect that it has produced, can be safely recommended to farmers as a cheap and valuable fertilizer; the object in preparing this article is to give the farmer a manure at a very low price, that will enable all to use it. It is prepared upon strictly scientific principles, and is recommended to general use by the *Farmers' Club, and the New York State Agricultural Society.*

For Sale by ALLEN & NEEDLES,
23 South Wharves, near Chesnut Street, Phila.

Feb. 15th, 1848.—6m.

SEED STORE,

No. 23 Market Street, Philadelphia.

The subscriber keeps constantly a supply of White and Red Clover, and other grass seeds; fresh Perennial Rye-grass, and Lucerne seed. Field seeds, consisting of choice Spring Wheat, Barley, Potatoe Oats, Northern and other seed-corn. Also, in season, Fruit and Shade Trees. Garden and Bird seeds generally. Guano in parcels to suit purchasers.

M. S. POWELL.

Philad., Feb., 1847. tf.

MOUNT AIRY
AGRICULTURAL INSTITUTE.

This Institution is located at Mount Airy, Germantown, seven miles from Philadelphia, being the grounds and Farm of JAMES GOWEN, Esq., so favorably known to the agricultural community—a site proverbial for its salubrity, and in every respect eminently adapted to the end and object of an Agricultural Seminary.

The system of instruction is such as to afford the student every facility for acquiring a thorough knowledge of Scientific and Practical Agriculture, with the use of the best modern farm implements and machinery.

Chemistry and the other Natural Sciences requisite to an enlightened course of agriculture, and applicable to the general pursuits of life, receive special attention; Lectures, with experimental illustration, being connected with each course.

The best facilities are also afforded to those who may desire to pursue collegiate branches, or acquire a thorough Commercial Education, under circumstances highly favorable to physical and moral culture, so that in addition to the main object of the Institution, (Agriculture,) the students may be prepared for any other respectable profession.

The Institution has the advantage of adjoining the residence of Mr. GOWEN, who kindly volunteers his experience and counsel in promoting the object of the establishment—Agricultural Education.

The year is divided into two sessions; the first session beginning on the first Thursday of April, the second on the first Thursday of October.

Terms $125 per session, payable in advance—including bed, bedding, washing, mending, fuel and lights.

Address the Principal, JOHN WILKINSON, (until 18th March) at Poughkeepsie, N. York; (after that time, Germantown, Pa.

Or, JAMES GOWEN, Esq., Philada., Pa.

REFERENCES.—James Gowen, Esq. Philadelphia, Pa. Robert Ewing, Esq., do.—Professor John Frost, do.—Geo. W. Dobbin, Esq., Baltimore, Md.—Gen. Wm. H. Richardson, Richmond, Va.—Zebedee Cook, Esq., New York,—Thomas M'Elrath, Esq., do — Isaac C. Kendall, Esq., do.—Rev. Frederick A. Fraley, Brooklyn. Hon. Alfred Conkling, Auburn, N. Y.—Ex. Governor Wm. C. Gibbs, Newport, R. I.—Geo. Vail, Troy, N. Y. C. N Bement, Esq., Albany, N. Y.—B. P. Johnson, Esq., do.—Robert Farley, Boston, Mass.—Hon Samuel Wilde, do.—Hon. Wm. J. Hubbard, do.—Hon. Francis O. Watts, do.—R. W. Crookshank, Esq., St. Johns, N. Brunswick.

March 15th, 1848.—1t.

Agency for the Purchase & Sale of
IMPROVED BREEDS OF CATTLE & SHEEP.

THE subscriber takes this method of informing his friends and the public, that he will attend to the purchase and sale of the improved breeds of cattle, sheep, swine, poultry, &c., for a reasonable commission. All letters post paid, addressed to him at Philadelphia, will be attended to without delay.

AARON CLEMENT.

April 15th, 1847.

NEW
Horticultural and Agricultural Ware-house,

84 *Chesnut Street below Third, South side.*

The subscriber has for the better accommodation of his customers, opened the above ware-house, with a large stock of Garden and Field Seeds, crop of 1846. Implements and Books on Gardening and Farming; he calls the particular attention of farmers to his pure stock of Sweede Turnips, Field Carrots, Beets and Parsnips, Pruning Shears, Saws and Knives.

March 14th, 1847.—1y. R. BUIST.

COATES' SEED STORE,

No. 49 *Market Street,*

FRESH TIMOTHY SEED,

Of various qualities, from good common seed to the purest and finest that can be produced,

TOGETHER WITH A COMPLETE ASSORTMENT OF

GRASS & GARDEN SEEDS,

Of the finest Quality and best Varieties,—Bird Seeds, &c.

JOS. P. H. COATES,
Successor to George M. Coates.

May 15th, 1847.

PREMIUM IMPLEMENTS.

PROUTY'S Improved Machine for Shelling and Screening Corn, and Separating it from the Cob.

For this Machine the Philad'a Agricultural Society awarded their first Premium for Corn Sheller, 1847.

Grant's Patent Premium Fan Mill,

For Chaffing and Screening Wheat, at one operation. Three Silver Medals, and nine First Premiums, have been awarded for the above Mill.

Prouty and Mears' Patent Centre-Draught, Self-Sharpening Ploughs. First Premium awarded for these Ploughs, by the Philadelphia Agricultural Society, 1844, 1845, 1846 and 1847.

Corn and Cob Breakers and Grinders,

Corn Stalk Cutters & Grinders—Sugar Mills—Spain's Improved Barrel Churn, the dashers of which may be taken out to clean. Also, a full assortment of Agricultural Impliments, Manufactured and for Sale by

D. O. PROUTY,

No. 194½ *Market Street, below Sixth, Phildelphia.*

Nov. 15, 1847.—tf.

☞ SHORT ADVERTISEMENTS,

The subject matter of which, may correspond with the agricultural character of this paper, will be inserted at the rate of one dollar for each insertion of ten lines or less; and so in proportion for each additional line. Payment in advance.

THE quantity of rain which fell in the 2nd month 1848, was ..... 1,443 in.

Penn. Hospital, 3rd mo. 1st.

We keep on hand at this office, and will supply our friends with Agricultural works generally. Among which are

THE FARMER'S ENCYCLOPEDIA, full-bound in leather;—Price	$3 50
YOUATT ON THE HORSE, with J. S. Skinner's very valuable Additions;	2 00
BRIDGEMAN'S GARDENER'S ASSISTANT;	2 00
THE AMERICAN POULTRY BOOK;	37½
THE FARMER'S LAND MEASURER;	37½
DANA'S MUCK MANUAL;	50
Complete sets of the FARMERS' CABINET, half-bound, 11 vols.	9 50
DOWNING'S Landscape Gardening,	3 50
Downing's Fruits and Fruit Trees of America,	1 50
SKINNER'S Every Man his own Farrier,	50
AMERICAN Poulterer's Companion.	1 25
BOUSSINGAULT'S RURAL ECONOMY,	1 50
FARMERS' & EMIGRANTS' HAND-BOOK,	1 00
MORRELL'S AMERICAN SHEPHERD,	1 00
STABLE ECONOMY,	1 00
BEVAN on the HONEY BEE,	31¼
BUISTS' ROSE MANUAL,	75
THOMAS' FRUIT CULTURIST.	50
SKINNER'S CATTLE & SHEEP DOCTOR,	50
AMERICAN FARRIER,	50
THE FARMER'S MINE,	75
HOARE ON THE VINE,	62½
HANNAM'S Economy of Waste Manures,	25
LIEBIG'S AGRICULTURAL CHEMISTRY,	25
" ANIMAL CHEMISTRY,	25
" FAMILIAR LETTERS,	12½
JOHNSON'S DICTIONARY OF MODERN GARDENING,	2 25

Subscriptions received for Colman's Agricultural Tour—or single numbers sold.

☞ We are prepared to bind books to order.

AFRICAN GUANO.

First quality African Guano, from the island of Ichaboe, warranted genuine. Also a few tons Peruvian

For sale by J. B. A. & S. ALLEN,
No. 7 South Wharves, 2nd Oil Store below Market street.

Philadelphia, March 17th, 1847.

Poudrette.

A valuable manure—of the best quality, prepared in Philadelphia, for sale at the office of the Farmers' Cabinet, No. 50, North Fourth Street, or at the manufactory, near the Penitentiary on Coates' street. Present price, $1 75 per barrel, containing four bushels each, or 35 cents a bushel. Orders from a distance, enclosing the cash, with cost of porterage, will be promptly attended to, by carefully delivering the barrels on board of such conveyance as may be designated. The results on corn and wheat last year have been generally very satisfactory. Farmers to the south and in the interior, both of this State and of New Jersey, are invited to try it. We are now ready to supply any demand for corn, or as a top dressing for wheat.

JOSIAH TATUM

Philada. 8th mo. 16th, 1847.

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THE FARMERS' CABINET,

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JOSIAH TATUM, No. 50 NORTH FOURTH STREET, PHILADELPHIA.

It is issued on the fifteenth of every month, in numbers of 32 octavo pages each. The subjects will be illustrated by engravings, when they can be appropriately introduced.

Terms.—One dollar per annum, or five dollars for seven copies—*payable in advance.*

All subscriptions must commence at the *beginning* of a volume. Having lately struck off a new edition of one or two of the former numbers, which had become exhausted, we are now able to supply, to a limited extent, any of the back volumes. They may be had at one dollar each, in numbers, or one dollar twenty-five cents half-bound and lettered.

For eight dollars paid in advance, a *complete set* of the work will be furnished in numbers, including the 12th volume. The whole can thus readily be forwarded by mail. For twenty-five cents additional, per volume, the work may be obtained neatly *half-bound and lettered.* Copies returned to the office of publication, will also be bound upon the same terms.

By the decision of the Post Master General, the "Cabinet," is subject only to newspaper postage.

Joseph Rakestraw, Printer.